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STARTLING STORIES

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FEATURING

WINGS OF ICARUS

An Amazing Complete Novel

By RAY CUMMINGS

THE IDEAL

A Hall of Fame Classic

By STANLEY G. WEINBAUM

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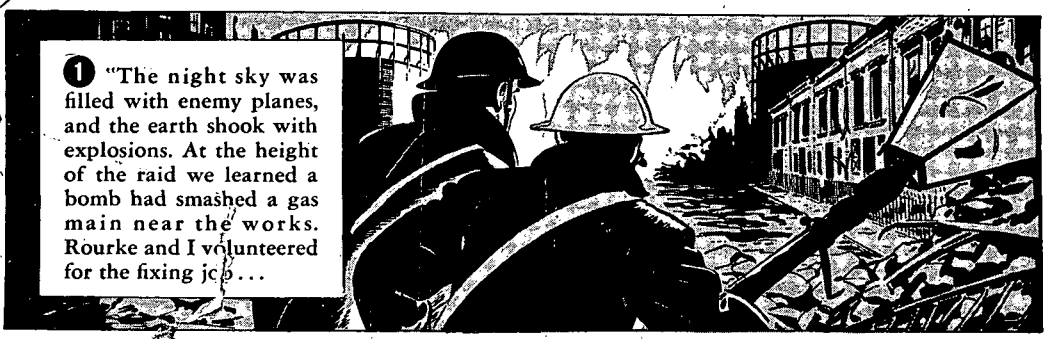
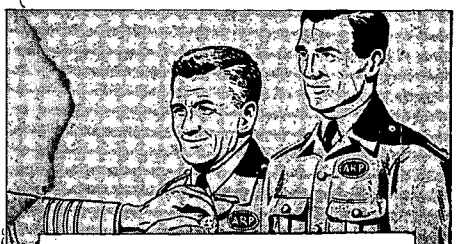
INCHES FROM DEATH, THEY WORKED LIKE FIENDS!

A true story of the blitz in England as told to a War Correspondent by Arthur Letts and Frederick Rourke, gas repair men for the Thames Estuary District, Greater London.



❶ "The night sky was filled with enemy planes, and the earth shook with explosions. At the height of the raid we learned a bomb had smashed a gas main near the works. Rourke and I volunteered for the fixing job . . .

❷ "We found it," continued Rourke. "A big delayed action bomb sitting on a severed pipe in the middle of a three-foot crater. We set to work. Letts held the flashlight, taking care to shield it so the Nazis couldn't see it, while I blocked the broken pipe with clay.



❸ "In about 12 minutes the job was done. They were the longest minutes we've ever lived. We couldn't have done it without our flashlight—and the steady light from fresh batteries you can depend on."

NOTE: *Bomb Squad later dealt with time bomb. The George Medal for "extreme courage and devotion to duty" was awarded to Rourke and Letts.*

OCD approved flashlight regulations stipulate careful shielding of the light from a flashlight during a blackout, as Arthur Letts did. Likewise wartime economy demands strict conservation of both flashlights and batteries.

Use your flashlight sparingly—save batteries! Don't buy a new flashlight unless the old one is beyond repair! Don't hoard flashlight batteries! Don't put in a more powerful bulb than your flashlight calls for—it simply wastes power!

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Today's Toughest Fighters Are Ju-Jitsu Experts!

Our soldiers, sailors, leathernecks and fellows entering the armed forces well know that in this all-out war their very lives depend on a knowledge of all-out tactics. The Rangers and Commandos use this deadly instrument of scientific defense and counter-attack. American police and G-men, prison, bank, asylum and factory guards, and other defenders of our public safety are relying more and more upon it. Even in the schools, boys of teen age are being taught Ju-Jitsu. It is not a sport, as our enemies are discovering to their sorrow. It is the crushing answer to treacherous attack. You, too, must learn to defend yourself and your loved ones as ruthlessly as our fearless, hard-hitting fighters.

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STARTLING STORIES

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A Complete Book-Length Scientifiction Novel

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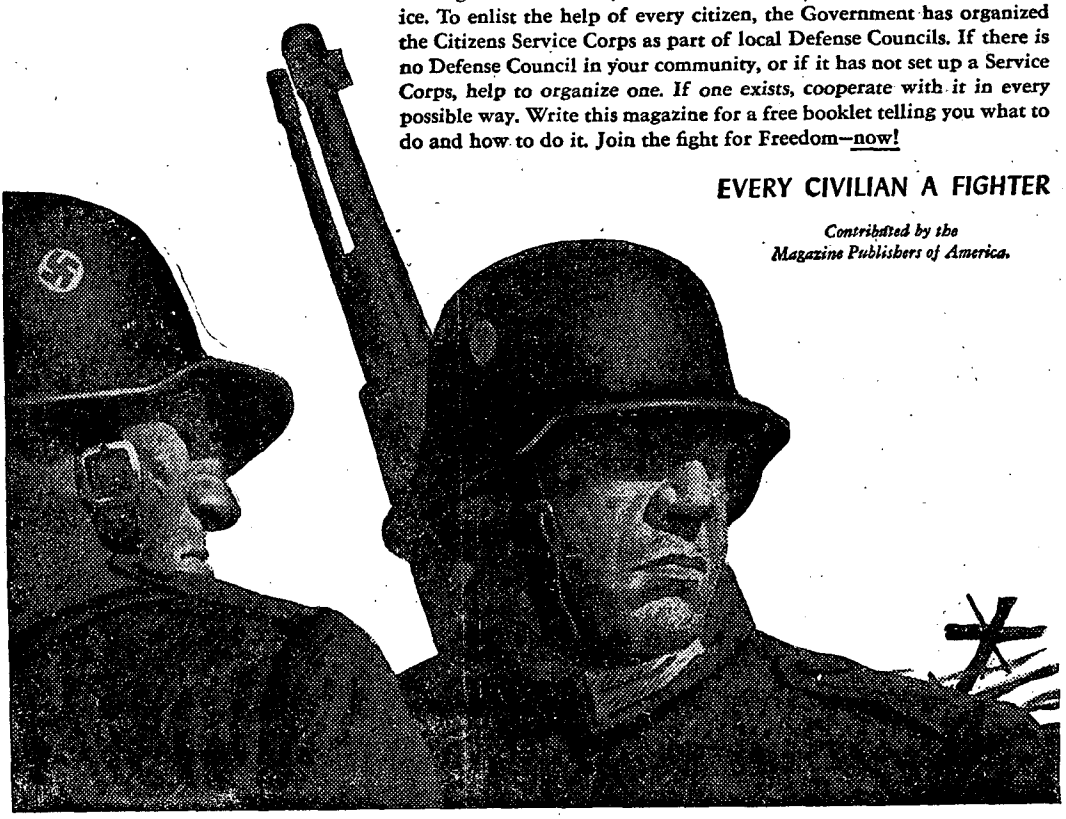
If they win ...only our dead are free

These are our enemies.
They have only one idea—to kill, and kill,
and kill, until they conquer the world.
Then, by the whip, the sword and the gallows, they will rule.
No longer will you be free to speak or write your thoughts, to worship God in your own way.
Only our dead will be free. Only the host who will fall before the enemy will know peace.
Civilization will be set back a thousand years.
Make no mistake about it—you cannot think of this as other wars.
You cannot regard your foe this time simply as people with a wrong idea.
This time you win—or die. This time you get no second chance.
This time you free the world, or else you lose it.
Surely that is worth the best fight of your life
—worth anything that you can give or do.

Throughout the country there is increasing need for civilian war service. To enlist the help of every citizen, the Government has organized the Citizens Service Corps as part of local Defense Councils. If there is no Defense Council in your community, or if it has not set up a Service Corps, help to organize one. If one exists, cooperate with it in every possible way. Write this magazine for a free booklet telling you what to do and how to do it. Join the fight for Freedom—now!

EVERY CIVILIAN A FIGHTER

Contributed by the Magazine Publishers of America.



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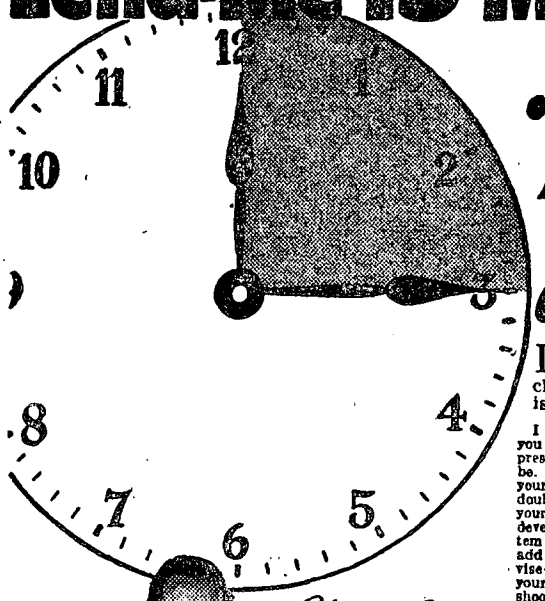
Lend Me 15 Minutes A Day

..and I'll prove I can make you a NEW MAN



I'M "trading-in" old bodies for new! I'm taking men who know that the condition of their arms, shoulders, chests and legs—their strength, "wind," and endurance—is not 100%. And I'm making NEW MEN of them.

I don't care how old or young you are, or how ashamed of your present physical condition you may be. I can add SOLID MUSCLE to your biceps—yes, on each arm—in double quick time! I can broaden your shoulders, strengthen your back, develop your whole muscular system INSIDE and OUTSIDE! I can add inches to your chest, give you a vise-like grip, make those legs of yours lithe and powerful. I can shoot new strength into your old backbone, exercise those inner organs, help you cram your body so full of pep, vigor and red-blooded vitality that there's not even "standing room" left for weakness and that lazy feeling! Before I get through with you I'll have your whole frame "measured" to a nice, new, beautiful suit of muscle!

I Was a 97-lb. Weakling

All the world knows I was ONCE a skinny, scrawny 97-pound weakling. And NOW it knows that I won the title, "The World's Most Perfectly Developed Man." Against all comers! How did I do it? How do I work miracles in the bodies of other men in only 15 minutes a day? The answer is *"Dynamic Tension,"* the amazing method I discovered and which changed me from a 97-pound weakling into the champion you see here!

What 15 Minutes a Day Can Do For You

Are you ALL MAN—tough-muscled, on your toes every minute, with all the up-and-at-'em that can lick your weight in wildcats? Or do you need the help I can give you—the help that has already worked such wonders for other fellows, everywhere?

In just 15 minutes a day, right in the privacy of your own home, I'm ready to prove that *"Dynamic Tension"* can lay a new outfit of solid muscle over every inch of your body. Let me put new, smashing power into your arms and shoulders—give you an armor-shield of stomach muscle that laughs at punches—strengthen your legs into real columns of surging stamina. If lack of exercise or wrong living has weakened you inside, I'll get after that condition, too, and show you how it feels to LIVE!

Actual photo of the man who holds the title, "The World's Most Perfectly Developed Man."

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—B. L., Oregon

"My muscles are bulging out and I feel like a new man. My chest measures 38 in., an increase of 5 in., and my neck increased 2 in."
—G. M., Ohio

FREE THIS FAMOUS BOOK THAT TELLS YOU JUST HOW TO GET A BODY THAT MEN RESPECT AND WOMEN ADMIRE

Almost two million men have sent for and read my book, *"Everlasting Health and Strength."* It tells you exactly what *"Dynamic Tension"* can do. And it's packed with pictures that SHOW you what it does. Results it has produced for other men. RESULTS I want to prove it can get for YOU! If you are satisfied to take a back seat and be pushed around by other fellows week-in, week-out, you don't want this book. But if you want to learn how you can actually become a NEW MAN, right in the privacy of your own home and in only 15 minutes a day, then man!—get this coupon into the mail to me as fast as your legs can get to the letterbox! CHARLES ATLAS, Dept. 776, 115 East 23rd St., New York, N. Y.

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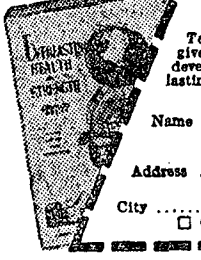

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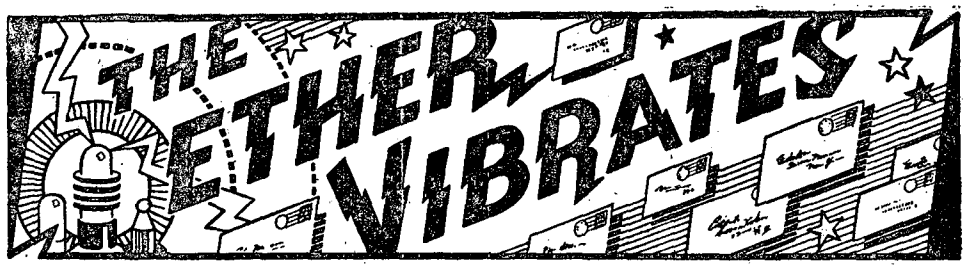

A Department Where Readers, Writers and the Editors Get Together

ALL right, all you space monkeys, pull in your necks so we can seal the ports for this voyage.

Hand the old Sarge the manifest sheets, Frog-eyes, and let's see what's cooking for next issue.

Well, what do you know about that? PIRATES OF THE TIME TRAIL! A complete book-length novel by Ross Rocklynne. Remember THE DAY OF THE CLOUD? That was nothing compared to the bewildering trip Author Rocklynne takes us on in PIRATES OF THE TIME TRAIL.

The story begins with the hero being forced down in an unequal air battle with a flight of Japanese planes. Just as death seems inevitable, an invisible dome of force suddenly surrounds his plane, and a queer space ship of the future materializes beside him. The attacking Jap planes—those our hero was unable to shoot down—crash against this force dome in helpless destruction. Which is very fine.

Mysterious Imprisonment

But—if the Japs can't get in after their intended prey, neither can he get out. Thus, Captain Steve Killiard is trapped within a force field with a mystery ship of a different age.

As Killiard stands there recovering from his amazement, the airlock of the strange ship opens and a huge Frenchman in gaily-colored garb advances to accost him.

And Steve Killiard finds himself a prisoner and slave to the PIRATES OF THE TIME TRAIL.

From this point on this new novel by Ross Rocklynne leads us into fantastic adventure and a saga of science and love and peril which will have you junior pilots hanging onto the gravity handrails for sheer joy. Even the old Sarge has never taken you on a more thrilling cruise than this.

Hall of Fame Classic

The Hall of Fame Classic which is stowed away in the next cargo hatch is a splendid yarn by Raymond Z. Gallun which you old-timers will remember with pleasure. THE SPACE DWELLERS has been chosen for this honor as being one of the best stories written by Raymond Z. Gallun. Incidentally, Gallun's latest story is on page 89 of this issue you are now reading.

Sure, sure, there will be other short stories in the cargo, brand new yarns and new THRILLS IN SCIENCE and as many interesting features as we can crowd into the hold for you busy little beasts to worry apart. So, while you are licking your chops in anticipatory relish, let's shake out the mail sack and see what damage you little ogres have done.

STOP your snarling now and gather in the astrogation chamber where we can rend artists and authors limb from limb without startling the more gentle and mannerly passengers in the de luxe staterooms.

I have a flash from Private John M. Cunningham, who is stationed at Kearns, Utah. Pee-lot Cunningham states that he appreciates STARTLING STORIES more than ever now that he is in the armed service and he is looking forward with great anticipation to the publication of Hall of Fame Classics by the late Stanley G. Weinbaum. Well, Pee-lot John, you have one of Weinbaum's stories in this present issue, and the old Sarge hopes you like it.

The next ethergram comes from New Zealand. Here it is.

REPORT FROM DOWN UNDER

By T. G. Bockcroft

Dear Sarge: As no science-fiction magazines come to New Zealand now, and very few have come in the last two or three years, I have been able to obtain only four issues of STARTLING STORIES. These are January and March, 1939, and July and November, 1940. The story I liked best was, of course, "The Black Flame," then "The Impossible World," "Five Steps to Tomorrow," and "A Million Years to Conquer," in that order. For some reason, I did not care for "A Million Years to Conquer." It seemed to lack something, I don't know what. "Five Steps to Tomorrow" seemed to me to be a 21st century version of "The Count of Monte Cristo."

Wesso is a good artist, but best of all I like Virgil Finlay. His illustrations for "The Impossible World" were wonderful, and I only wish I had the issues containing "Twice in Time" and "The Three Planeteers." Wesso's illustrations are fair, but he is far below Finlay whose drawings are always peerless, and fit the story perfectly.

As for the covers, the first two were nothing special, that for July, 1940, was better, but the one for "A Million Years to Conquer" was great. As a cover artist, I considered Bergey just a little behind Finlay. His covers for "The Stolen Spectrum" in T. W. S. and "Captain Future's Challenge" were very good also. I have never seen covers by H. V. Brown as good as the two he did for "The Skylark of Valeron" and "The Legion of Space."

This being the first letter I have ever written to a magazine, I hope that you see fit to print it. I should appreciate a letter from any fantasy enthusiast in America who would care to write to me. No one I know in New Zealand seems to care for science fiction as I do.—**7 Roslyn Rd., Napier, Hawk's Bay, New Zealand.**

(Continued on page 10)

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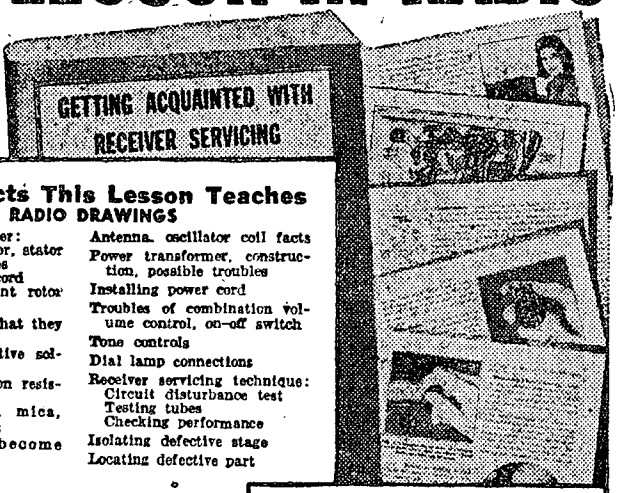
FREE LESSON IN RADIO



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WITH 31 PHOTOS, SKETCHES, RADIO DRAWINGS

How superheterodyne receivers work

How to remove tubes, tube shields

Three reasons why Radio tubes fail

Electrodynamic loudspeaker:
- How it works
- Replacing damaged cone
- Recentering voice coil
- Remedies for open field coil

Output transformer construction, repair

Gang tuning condenser:
- Construction of rotor, stator
- How capacity varies
- Restringing dial cord
- Straightening bent rotor plates

I.F. transformers—What they do, repair hints

How to locate defective soldered joints

Inside story of carbon resistors

Paper, electrolytic, mica, trimmer condensers

How condensers become shorted, leaky

Antenna, oscillator coil facts

Power transformer, construction, possible troubles

Installing power cord

Troubles of combination volume control, on-off switch

Tone controls

Dial lamp connections

Receiver servicing technique:
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- Testing tubes
- Checking performance

Isolating defective stage

Locating defective part

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Broadcasting Stations, Aviation and Police Radio, Ship Radio and other communications branches are scrambling for Operators and Technicians to replace men who are leaving. You may never see a time again when it will be so easy to get started in this fascinating field. The Government, too, needs hundreds of competent civilian and enlisted Radio men and women. Radio factories, with huge war orders to fill, have been advertising for trained personnel. And think of the NEW jobs Television, Frequency Modulation, and Electronics will open after the war! This is the sort of opportunity you shouldn't pass up.

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There's probably an opportunity right in your neighborhood to make money in spare time fixing Radios. I'll give you the training that has started hundreds of N.R.I. students making $5, $10 a week extra within a few months after enrolling. The N.R.I. Course isn't something just prepared to take advantage of the present market for technical books and courses. It has been tried, tested, developed, perfected during the 28 years we have been teaching Radio.

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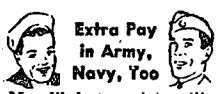

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THE ETHER VIBRATES

(Continued from page 8)

Surely you are wrong in that last surmise, Kiwi Bockcroft. The old Sarge discovers science fiction fans in the most unexpected places. If you look hard you'll find kindred souls over there in your part of the world. And as for our magazines, you'll find them easily procurable after the Allied Nations straighten out this global bellyache caused by an overdose of Japanazi aggrandizement.

Speaking of abdominal agony, here's a slight gripe from North Dakota.

ROCKLYNNE RATES CLASSICS

By Roy H. Ramsay

Dear Sarge: The other day a real pal of mine loaned me the November STARTLING STORIES. I read it at one sitting, and rate it thus.

1. "The Day of the Cloud." Say, that Rocklynne hasn't any business grinding out pulp. Why isn't he asking Sir James Jeans for his job? I predict that twenty years hence that yarn'll be a classic, and a hundred years hence it will be required reading in English classes—if such an outdated system of study is then in use. Tell Rocklynne I said so.
2. "The Earth-Saver." A fine example of the use of humor in STF without detriment to the scientific and adventure interests of the story.
3. "The Ancient Brain." That story was okay, and the Hall of Fame idea is even better.
4. "Death Ray." Oh, good heavens! Your other stories were excellent, but this one reaches an all-time low. Why do guys like Lewis have to be, anyway? Or does he do that badly all the time?

Like most STF pulps, you devote too much good space to special features. "The Ether Vibrates" is the only one worth keeping. Aside from that, you're all right.—**Niche, N. D.**

Thanks, Kiwi Ramsay, for your praise of Rocklynne's DAY OF THE CLOUD. You'll be glad to know that Ross returns with that book-length novel in next issue. As for your comment on Author Lewis, before I lock you back up in your cage, be advised that Author Lewis is busy nowadays with Japs or Germans, so your job is to buy all the War Stamps you can to keep him supplied with ammunition. You might note that the next kiwi on your left does not agree with you, anyway.

OF THIS AND THAT

By Augustus Elliot Kincade

Dear Sergeant Saturn: I missed the most in-

(Continued on page 115)

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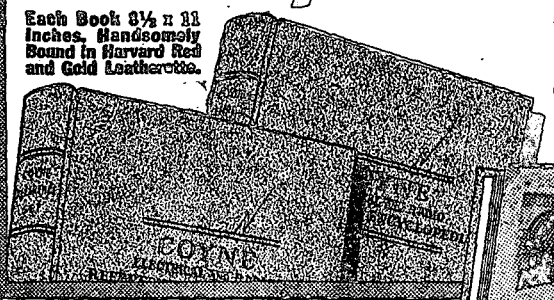

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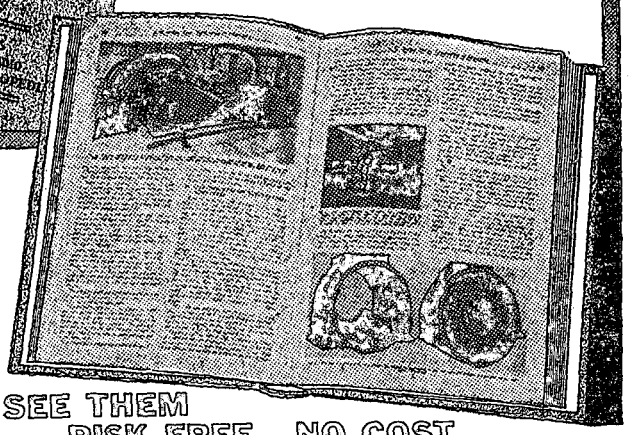

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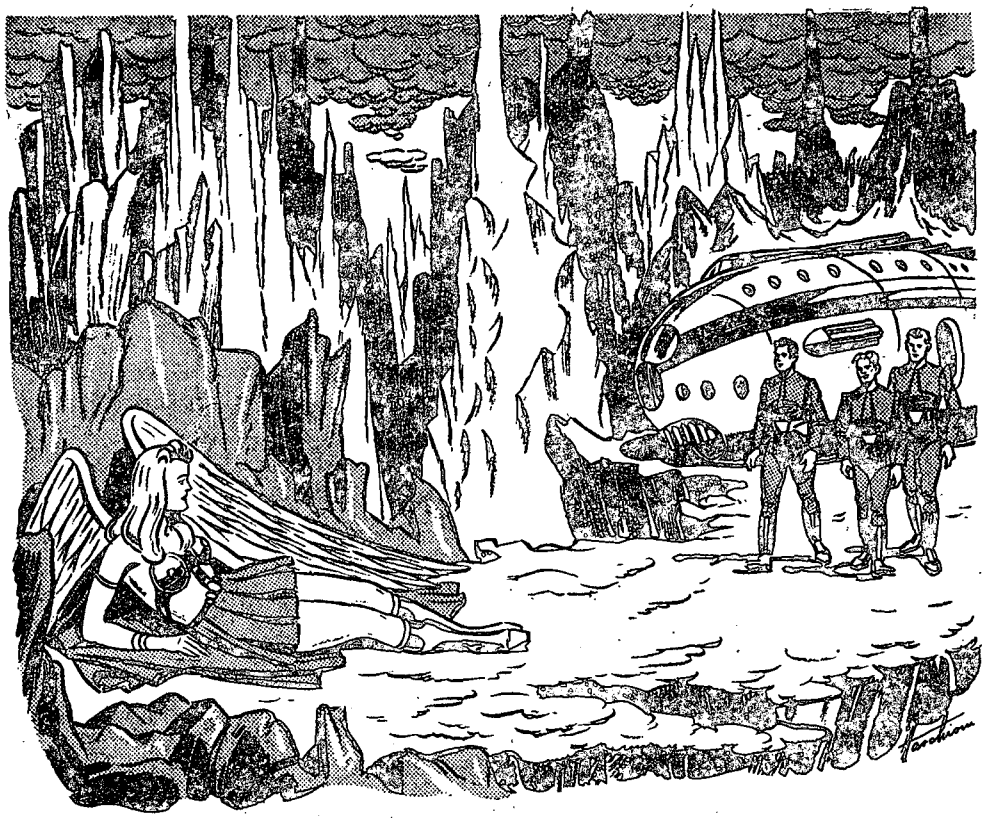

As her feet touched the ground, sparks flew and she fell in a tumbled heap (Chap. II)

WINGS OF ICARUS

By RAY CUMMINGS

Charlon, Ruler of the Bat People of Neptune, Puts Tremendous Obstacles in the Way of Three Spaceteers of Earth—and Jeopardizes the Destinies of Two Planets!

CHAPTER I

Disaster from the Moon

IT ALL began one evening last Summer, in July, 3042. I was at home when my audio-visual buzzed. It was my boss, Jonathan Edwards, Director of Raw Materials, Branch 2.

"Pleasure, or business, Chief?" I asked him.

"Business. Sorry. Your holiday is cancelled." I'd never seen him so grim before; ordinarily he's a smiling sort of fellow. "I want you to look up Navigator 1410, Interplanetary Transport Service. Evans. He's a friend of yours, isn't he?"

"Chick Evans? He sure is. But I haven't seen him for ages."

"He's in the city," the boss told me. "On holiday. But that's over. I've drafted him. I want you to report with

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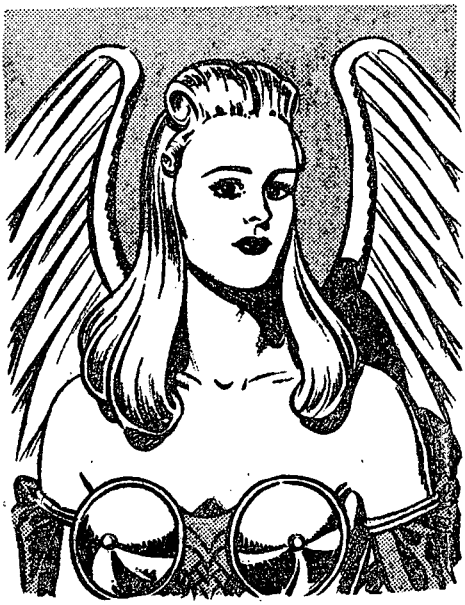

AHLA

him at once. This is important, Alan."

Nobody would question my boss when he was in a mood like this. So I made inquiries.

"I'm to bring him to Federal Supply Building?"

"Yes, right away," said Edwards.

The instrument clicked off. Fortunately, Chick was at home. His pug-nosed freckled face, with the shock of tousled red hair above it, was clear on the mirror-grid.

"Well, how are you, Alan? Glad to see you. I just got in on holiday."

"That's canceled," I said. "My boss, Jonathan Edwards, has drafted you. We're to report at once. I'll fly right over."

Chick Evans was not a bit pleased and he did not mind saying so. He is a belligerent little fellow, three years younger than I am. I am twenty-six. My name is Alan Frane. As persons know from the Government newscasters who have given this Neptune affair plenty of publicity, I am Junior Technician in the Raw Materials Division, producing the Nullo-grav units—the electronic counter-charged metallic plates which nullify gravitational force.

Chick Evans did not like laboratory work. He went in for Navigation and got a job on the Earth-Moon run handling one of the ore-freighters which take food and supplies to the Moon-colonists and bring back cargoes of the semi-refined ores.

Evans was waiting for me when I flew over.

"This better be good," he observed as he climbed into my roller. "I don't like being drafted."

HE WAS getting himself all worked up to give my boss a piece of his mind. But he did not. There was an air of grim tenseness in Edwards' little office-cubby. One could not miss it.

Edwards sat at his big oval desk with a sheaf of teletyped flimsies before him. Just one other man in the room remained in the room with Edwards, a small hunched fellow with a shock of white hair. He was Peter Green, Chief Advisory Chemist. Green nodded at me and shook hands gravely with Chick Evans. Then he spoke to the boss.

"You'd better isolate us, Edwards. We've got to talk plainly."

Chick Evans and I exchanged startled glances as the barrage-current went into the metal walls of the room with a faint hiss. Not until then did Green venture to speak.

"Do you young men know enough to keep your mouths shut?" he inquired.

Edwards answered for us.

"They do," he said.

Green's fingers riffled the sheaf of teletyped flimsies.

"This is what I've got to tell you. Here are the latest reports from our mines in the Andes and from the Moon. We're faced with a drastic raw materials shortage. Our supply of Uradonite is giving out."

Uradonite. Nobody had to tell Chick Evans and me what that would mean. The whole space-flying industry was dependent upon the volatile-active element Z-470. Nullo-grav units had made vessels weightless. But that could not provide propulsion. Then came the Mansfield cyclotronic engine, a power unit by which the immensely heavy atoms of Z-470 were broken down into electronic

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streams, the rocket-streams by which all space-flyers are propelled.

"We're using too much Uradonite," Edwards was saying. "The rapidly expanding Space-transportation Industries need more all the time. The Moon as you know is our chief source of supply—and the veins there are drying up—"

"Drying up?" the little chemist Green exclaimed. "They are almost dry now. Take a look at Macdonald's latest report. This shipment of semi-refined ore that just came in today from him—the lowest grade he's ever sent. What am I supposed to do with stuff like that? Refine down a ton of it to get a pound of commercial Uradonite?"

Chick Evans and I could only stare at each other, numbed. The news certainly hit Chick between the eyes. He was a space-flyer.

"Why, good grief," he murmured, "Without Uradonite we'd be grounded—Earth-bound. If we can't send flyers to Venus, Mars, the Moon, how are our colonists going to make out?"

Now that this thing is over, the truth may be told.

When Venus, Mars and the Moon were first explored and colonized, scientists were surprised to find Earthmen seemingly were the only human beings in the Solar System. On Mars only did living things approach the genus known as homo sapiens. We have some fifty million people abroad now. Most of them were born in the colonies. A dozen generations had passed since their ancestors had migrated from Earth to those other worlds.

"Fifty million persons," Chick Evans groaned. "Great Scott! we couldn't bring them back home. That would take ten years and we'd have to triple the number of space-flyers."

"And thus need that much more Uradonite," Edwards agreed grimly. "That's the danger now—our colonists will be marooned."

"And no more Uradonite to fly them," growled Edwards, in grim tones.

We stared at each other in consternation. It was Green, the scientist, who broke the silence.

ALAN FRANE

"Our colonists will be marooned," he said. "What can they do without medical supplies or tools with which to work? If they don't have these things from us they'll die. Then again, what will the Earth do? We must have their botanicals, their ores and the myriad things they send to us. Vast industries will collapse. It means economic disaster. What a catastrophe!"

Evans and I continued to stare at Edwards and him, white-faced.

Earth-bound. What an ignominious end to man's achievements. Like the waxen wings of Icarus, which melted in the sun, ours too seemed destined to vanish.

Finally Chick Evans spoke up hoarsely.

"What do you want us to do?" he asked.

"This situation took us entirely by surprise," said Edwards. "We thought we had enough Uradonite to last for centuries. Suddenly, without warning, the diggings on the Moon have dried up. We've sent exploratory vessels out beyond Mars to several of the alien-world Moons and the planetoids. Some came back, some didn't. And they found nothing."

"And now you want Alan and me to

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take up the search?" asked Chick Evans.

"You're the best Navigator available, Evans. And you, Frane, are our best technician. Here's the proposition. The Interplanetary Research Society has been building a new-type flyer. There's a fellow named William Boyle in charge of it. A fairly small ship, but with immensely powerful cyclotronic units. We hope it will develop ultra-velocity as he claims. Boyle has volunteered for the trip."

"The trip?" I echoed.

"We want three volunteers. A last chance, with the future of the space-flying industry and the welfare of millions of our colonists at stake. More Uradonite must be found. Out beyond Mars, Jupiter or Neptune are likely places, but keep looking until you find Uradonite. Well, how about it? Will you go?"

CHICK EVANS and I pondered. Despite the stirring appeal we could not help it. This proposition from a routine commercial flight. We would take an untried, new type of ship, hurling ourselves into the vast unknown and keep on searching. Maybe we would get back but, more likely, we wouldn't. There are too many chances of meeting some kind of hideous death.

But I guess I nodded agreement, for Chick Evans grinned.

"You give us the ship, Mr. Edwards, and I'll navigate us to Pluto and beyond," he said.

"What better adventure could I have on my vacation?"

The Society For Interplanetary Research certainly rushed that little ship to completion in a hurry.

We went down to the Montauk shop the next day. The ship lay in its cradle in the center of the big room, and workmen were swarming all over it.

We also met William Boyle. He was a big fellow, as tall as I am, which is something over six feet, and more heavily built. A man of perhaps thirty, he had a shock of wavy black hair and a rugged, heavy-featured face. Quite a handsome fellow. He seemed likable enough, efficient, with a complete knowledge of details here.

Our first sight of the new spaceship startled Chick Evans and me. Evans had been used to the big commercial Earth-moon transports. He stared, crestfallen.

"By Jupiter," he murmured. "So that's our death-trap. Why there's hardly room to die in it decently."

The ship had a glistening, green-black alumite cylinder, certainly no more than seventy feet from its broad fin-tail to its stubby nose. The middle of it bulged unduly. The fins were thick and narrow. A small glassite turret reared up just behind its nose.

It was astonishingly small, but in its squat heavy lines conveyed an unmistakable aspect of power. The Nullo-grav plates lined its hull top and bot-

CHARLON

tom. The rocket vents were in triple banks along the hull, with clusters of them for acceleration at the sides of the tail, and others for retardation in the bow.

"Just about all power plant," I observed.

"Exactly," Boyle agreed. "That's all we need—power to get where we're going."

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"How about getting back?" I asked.

He laughed.

"Well, yes, that's necessary, isn't it?"

We trudged around it, and then he led us into the lower exit port. There was a small cat-walk here, dim with shaded tube-light. The interior resounded with the thumps and hissing torches of the workmen.

"I'll say, you've sacrificed everything for speed," Chick Evans commented. "There is a place for us to sleep, I suppose?"

"Speed and safety," said Boyle. "Every mechanism is up to commercial standard, pressure, ventilating and power units, all based on the assumption that we'll attain ten times commercial velocity. We have a new development of the standard Mansfield engine. A double disintegrating time-rate. Rocket-stream pressure is built up and then released. In effect, that's a series of high-pressure electronic explosions, instead of the normal, steady-flow principle."

"Well, I hope it works," said Evans.

The immense power plant was on the center of the hull, forty Mansfield units, banked twenty on each side. Gleaming, sleek engines, every part as carefully made as the bearings of a chronometer. Beyond the middle-bow cubbies for the interior workings of the ship there was a small instrument and supply room. Three tiny sleeping cubbies, with spiral stairs which led up into the control turret.

We mounted the spiral.

"Very neat," observed Evans as Boyle showed us the banks of dials and instruments. Quite obviously every device of modern Interplanetary transportation was here. And there were several new instruments, which Boyle now explained.

"If this vessel lives up to its laboratory calculations, we'll certainly have no trouble getting out to Jupiter, at least," I declared.

"We will attain a maximum velocity of eleven times normal," said Boyle.

I stared at him.

"How can you predict that about an untried ship?"

"I have made careful calculations," he answered and turned away as though that ended the subject. Evans and I grinned at each other.

But I will say the more we examined that little ship, the more confidence we had in it. We were around the shop most of the time during the week that followed.

At last the *Nomad*, as we had named it now, was ready. Then came the night of our departure. There was no celebration, just the gathering of a few grim-faced officials.

At the runway, as we were ready to go aboard, Jonathan Edwards shook hands with us.

"Do your best." That was all he said.

Then the porte closed. Up in the turret, Chick Evans took the control seat, his slight body hunched down as, with skilled fingers, he caressed the levers.

"Well, here we go," he grinned. "Good luck to us."

The Uradonite gas-streams hissed into action. The *Nomad* quivered, slid upward along its short roller-bearing runway. The weightless vessel lifted from the downward thrust of the rocket-streams. We had just a glimpse of the waving group of officials.

And then we slid upward into the starlight.

CHAPTER II

Disaster on Neptune

MANY weeks later we arrived at Neptune, twenty-eight hundred million miles out. The eighth, and except for Pluto, the outermost planet of the Solar System at last lay beneath us. That powerful little *Nomad* had certainly lived up to expectations. At its fullest acceleration, we had attained a velocity of more than eleven times that of any commercial vessel. But even so, Neptune now was our last chance. Despite the immense velocity, the passing weeks —those were interminable weeks to us three, believe me—had consumed a dangerous amount of the Uradonite fuel we

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had brought with us. The new-type Mansfield units gave speed, but they were wasteful, more wasteful than we had anticipated.

Jupiter proved to be about what we had expected, a viscous, semi-liquid surface upon which we could not possibly land. Saturn and Uranus were far on the other side of the Sun. Thus they did not figure. And now, here was Neptune. We went down through heavy, swirling, green-yellow cloud masses, and at some twenty thousand feet burst out to have our first look at the planet's surface.

Chick Evans scowled at the panorama.

"Nice hospitable-looking place," he sneered.

Below us we could see a stretch of wild greenish naked rocks, tumbled as though riven by a monstrous cataclysm. There were jagged peaks and spires, deep canyons and great pits of darkness. On this sphere hardly an Earth-acre of even semi-level land could be found.

"Only a bird could get anywhere," declared Evans, as we sat in the turret, staring down in awe. "And we're not birds, either. Climbing up and down those cliffs, one couldn't go a mile a day."

"But that's the sort of rock for Uradonite," I said.

"Let's try it," suggested Boyle. "There's only enough Uradonite-fuel to get us back to Earth. If we don't land here, what would you suggest?"

We had no argument to that.

"All right," agreed Chick Evans. "If I can spot level ground I'll set the *Nomad* down."

Small as the ship was, finding a landing place did not prove easy. Neptune has the most forbidding landscape I have ever seen. Occasionally the sun peered through the clouds, just a little dull dot in the firmament. A dull, yellow-green twilight lay soddenly upon the wild Neptunian peaks, painting them into a dull drab monochrome. We knew Neptune revolves upon its axis in something over two Earth-days but that sunlight here was negligible. It seemed obvious this same weird twilight prevailed always, a blending of reflected starlight through turgid clouds, and perhaps a little glow inherent to the ground itself.

But this air should be breathable.

"Test some, will you?" I suggested to Boyle.

We had dropped down now to about ten thousand feet. He could let some into our vacuum pressure-lock and test it easily.

Boyle came back presently. "Resembles Earth air," he reported.

Then we cut off our artificial, interior-gravity from the tiny testing-lock in the bow. Neptune's gravity pull proved to be somewhat less than that of Earth—porous rock masses; a globe less dense than ours, with a lesser total mass.

"Well, that's a comfort, anyway," smiled Chick Evans. "I'm sick of Moon-travel under glassite and light gravity . . . There! See it? That's where we land. Sort of a rock shelf?"

NOW a small level area, with pits of darkness on both sides and a precipitous cliff at one end, came into view. We were going down nicely, when abruptly, at a thousand feet, something went wrong.

Boyle gripped me.

"Look at that altimeter needle. We're dropping too fast. You, Chick Evans! Watch yourself."

It wasn't Chick Evans' fault. He'd calculated the proper mullification but Neptune's gravity had suddenly changed. It had increased.

Only for an instant did Chick Evans seem flurried. How could you blame him?

Frantically he reached for the adjustment levers. Then he let go of them and flung on the rocket-streams to put upward thrust under the hull.

That seemed to do it. At least, we thought so.

The level areas opened out underneath.

"Easy," I murmured. "Be careful, Chick."

Gosh, it seemed strange. Despite Chick Evans last-instant efforts, it turned out to be a crash landing, after all.

The yellow-green rock spires came

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sliding up. Then the bow of the *Nomad* struck first—hard! A shuddering thump!

The shock knocked all of us to the floor. The lights went out. Then silence. Only the full green-yellow Neptunian twilight came filtering in through portholes. None of us was hurt. Chick Evans was the first to scramble to his feet. "By Jupiter," he gasped. "What a navigator I am."

"Let's get out of here," suggested Boyle. "There's chlorine gas escaping."

The ventilating system had quit working. We could smell the choking, acrid chlorine. It did not take long to follow Boyle's advice. Within half a minute all three had scrambled along the hull catwalk and into the lower vacuum lock. The Neptune air came into it slowly, hissing heavily. That air smelt queer. But it proved breathable, more breathable than the chlorine fumes which had us choking by now. Then Chick slid back the exit door and we jumped to the rocks.

So this was Neptune. Awed, I stood swaying, gasping a little until my lungs grew accustomed to the new atmosphere. The temperature here reminded me of Earth on a tropic night. The porous rocky ground seemed radiating heat as though from the planet's molten interior.

We had not had time to bring along any equipment—but had tumbled out of the wrecked ship in the clothes we were wearing, tight flexible knee-boots, tight dark trousers and long shirt-blouses. All of us were bareheaded.

For a minute we stood gazing. That landscape was just the opposite of inviting. All one could do was to look at it, and then wish to be somewhere else.

"This dump will take some tough exploring," was Chick Evans' comment. "It beats anything I've bumped up against so far."

For a few hundred feet the ledge on which we stood extended in a reasonable manner. Then it ended in nasty precipices, straight down into green blackness. At the two ends of the ledge, rock-spires went straight up. A mountain goat, even an abnormally adventurous, optimistic one, would have been nonplussed.

Evans and Boyle found themselves surrounded by a thousand of these eye-creatures (Chap. VI)

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At this moment Boyle emitted an oath and gripped me by the arm.

"What's that?" he cried. "Look off there, over that peak."

A DARK speck had appeared in the sky. It seemed to have wings and to be flying toward us. Could it be a bird? That there should be anything at all living on this bleak, barren world came as a shock. But there it was and approaching us, too. In a moment the speck had enlarged to be a queer, slim oblong object with a great spread of rhythmically flapping white wings, bigger than those of an albatross.

"Flies like a wounded bird," I observed to my companions.

"Something is sure the matter with it," agreed Chick Evans. "Look at it flopping along. Must be in trouble."

The approaching object had drawn quite near. It had passed the ragged edge of one of the rock spires now, and seemed to be heading toward us. Then Boyle let out a gasp of surprise.

"By George, that's not a bird," he exclaimed. "It's human. Boys, am I crazy? It looks like a girl!"

And that's what it was, too. A winged girl.

In another moment we could see her clearly, a slim little body, white-limbed, with a bluish drape that fluttered in the wind and long golden hair.

On motionless pinions she soared past the peak. Her wings were broad, white-feathered and gracefully arched. Then she flapped them back again desperately, as if in danger of falling. To me it seemed as if the girl were exhausted. She made another effort and managed to land, upright, on the ledge a short distance away.

In the dim twilight I noticed something else peculiar. As her feet touched the rocks, sparks flew from them. Then she stumbled and fell in a little quivering heap.

For a moment we just stood staring.

"It's a bird-girl," yelled Chick Evans. "Let's see if we can help her."

He spoke too late. Already I had started running toward her. Boyle and Evans followed me. Though level for a few hundred yards, the ground was strewn with jagged boulders and crags. It proved to be tough going. But at last we managed to reach the girl and stood for a moment, gaping.

She was certainly human, all right. Except for those wings, it could have been a slim, blonde young Earth-girl lying there. Her ten-foot wings were spread out and quivering, under her. We saw they were not artificial, but as much a part of her body as those of a bird.

She did not seem to be wounded, either, just exhausted and breathless. I felt sure of that when she raised herself to her elbow and looked us over.

This girl might have been seventeen or eighteen years old and even by Earth standards she was undeniably beautiful. But it was a strange beauty. Her golden hair had the same opalescence which is seen in sea shells and her eyes had an Oriental slant.

"Well, I'm a tower-watchman if she isn't a little beauty." Then he spoke to the girl. "What's the matter, sister? Are you hurt?"

My arm swept him back.

"Take it easy," I cried. "Can't you see you're frightening her?"

THE girl sat up and caught a good glimpse of us. She seemed surprised for her little hands went to her face in a terrified gesture. To quiet her I stepped back, instead of forward.

"Look here," I said. "Do you speak an audible language?"

She did. Her face dimpled into a bewitching smile and from her red lips tumbled soft, liquid, unintelligible syllables. Of course we could not understand them until she pointed at herself.

"Ahla," she said. "Ahla. Ahla."

I knew what that meant. It was her name. So I put one finger to my chest.

"Alan," I said. Sure enough, she understood me.

She seemed to have recovered her strength, now, for she arose to her feet. It gave me an odd sensation to see the tips of her folded wings touch the rocks, rattle the pebbles and to realize they

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were part of her slender, graceful body.

At this moment I heard a gasp and Chick Evans spoke into my ear.

"Take a look to your left, quick," he suggested. "There are more of them coming."

All three of us Earthmen turned around and gazed in the direction Evans indicated. He had spoken the truth. In the purple twilight several tiny figures flapped into view from behind a tall spire. They came rapidly—although awkwardly—in our direction. Now we could see them plainly. For a moment with beating wings, they gathered above us, like a dozen half-human hawks. Then they swooped down and hit the shelf nearby with a series of heavy thuds.

We gazed at each other in mutual astonishment. My feelings were hard to define. Apparently, all of the inhabitants of Neptune had wings. Four or five girls were numbered among the newcomers and, like the men, were small of figure. They were clad in either brown, green or black robes. The brown hair of the women was parted in the middle and draped down their backs in between the wings, but the hair of the men rose up above their foreheads, in short unruly shocks.

After observing us, they hurried to the side of the golden haired girl as if to make certain she was all right, and then once more turned to gaze at us, the three strange Earth men. They moved closer, surrounding us.

"Take it easy," Boyle warned them, in sharp tones. "We're friends."

Ahla spoke to them again, possibly assuring them we were harmless. She must have mentioned the wrecked *Nomad,* for they turned to glance at it. But it was obvious to me they did not understand either the use or meaning of rocket ships. When the girl finished speaking, the men pressed about us, jabbering in excited voices. Our lack of wings seemed to confound these inhabitants of the planet. One of them tore open my shirt and examined my shoulders, as if in search of scars. He appeared to think some horrible mutilation had deprived us of our wings and seemed surprised to discover no proofs to back up his theory.

Then it seemed to dawn upon them we were born that way, and their contempt and pity had no bounds. Shortly afterward they held another conference, as if discussing some plan of action. When they had come to an agreement, four of the men leaped into the air and flew away. To me that was one of the strangest things of all. Back on Earth I have seen pigeons take off in just the same manner.

Boyle watched them disappear among the spires. Then he turned to me.

"Where have they gone?" he said. "I wonder what is up?"

"Suppose we wait and see," I suggested. "In the meantime we can try to understand their language."

But it was no use. We soon found that out. Our Earth tongues and vocal chords are totally incapable of mastering those odd, rippling accents which flowed from Ahla's lips. On the other hand the flexibility of her throat seemed to lend itself to acquiring our language. In a little while she had not only memorized our names but several other words, as well. Furthermore, she appeared to remember them and to know what they meant, too. Later, when I learned the extraordinarily retentive power of the Neptunian memory, I felt less surprised.

WITHIN thirty minutes I noticed something else. Other inhabitants of the planets were arriving in groups of threes and fours. Soon the ledge actually began to grow crowded.

In about an hour the four men who had left came back. They brought with them four hastily contrived baskets made of yellow-green withes. Bound to these baskets were long handles.

"Flickering Saturn, take a squint at those litters," cried Chick Evans. "They mean to carry us away somewhere."

"That suits me fine," I answered. "Two of us can go, and one of us remain here to watch the ship. Which one shall it be?"

Evans, Boyle and I had an excited dispute, much to the amazement of the

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Neptunians who couldn't seem to understand what all the shouting was about. Finally we settled the matter by drawing straws. It was Boyle who was finally elected to stay.

So Evans and I turned to the winged men, tapped ourselves on the chests and nodded our heads in agreement. Then we pointed at Boyle and tried to register a plain and emphatic negative. To us the whole pantomime seemed clear enough.

But these winged men did not get the idea at all. Grinning broadly they advanced, seized us all with powerful grips and started to load us into the baskets.

"No, no!" I yelled in protest. "All three of us can't go. One must stay here with the ship."

But the men of Neptune paid no attention to our shouts. They merely tightened their hold and tried to boost us into the cradles. We commenced to resist. A fight started, and soon we were battling for all we were worth.

I sent one of the winged men sprawling over on his side and shook off two more. For a moment I almost won free. Around me I could hear and catch glimpses of similar flurries. Evidently my companions likewise were putting up a tussle. But there were too many of these Neptune men around and our resistance had been hopeless from the start. What can three men do against a hundred?

Then reinforcements surged forward and overwhelmed us. They yanked our hands behind our backs and tied them. Then our feet were lashed together. Next we were tossed roughly into baskets and warned to lie still. By this time we felt quite willing to quit struggling.

During the disturbance Ahla had been fluttering around, wringing her little hands and calling out soothing words. She was trying to reassure us that we would not be harmed. These Neptune people did not understand it was strictly against regulations of Interplanetary Transportation Force for fliers to leave their ship deserted in a case like this.

Our resistance seemed to change the whole atmosphere. I had never realized how quickly these men could turn into sinister and grim looking captors. The glances which they now turned upon us were vindictive enough to curdle the blood. With no more ceremony than butchers waste upon chunks of food, they hurled us into the baskets. Then they seized the handles of the litters—eight to a cradle—and took off from the ledge.

Just as we left the landing place, I heard Evans call out my name.

"Live chicken, trussed up good and tight, bound for the market," he yelled. "What are they going to do with us now, Alan? Cut off our heads?"

It was just like Evans, to joke at such a time. As for me I did not feel like joking. Prospects did not look so good. Captives on Neptune! What could we do now?

CHAPTER III

Scourges of Neptune

DESPITE the fact they were burdened with the heavy baskets the men of Neptune managed to carry us along at a fair rate of speed. Yet even at the time I noticed a certain awkwardness, an air of uncertainty, which seemed strange to me at the time. It struck me that men like these, who had literally been born with wings like birds, ought to fly better and to make speedier progress.

Underneath the baskets the landscape began to change. It grew more wildly mountainous, although it had been rough enough before. At certain spots I noticed small areas where the soil had been gathered, as if for the growing of food.

We rounded a mountain peak, came in sight of a small city built in the side of one of the crags. Under the yellow glow of twilight as we approached I had a glimpse of fantastic crystal houses, built on terraces. The mountain itself was flat topped, and beyond the shining city, in the distance I could see a black looking lake, and a forested island, far

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We launched our whirling disc knives at the oncoming Gars (Chap. XIV)

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out. Later we learned the city was called Aerita.

On the top of the mountain, in the center of a fantastic spindly forest, stood a single large crystal building. We swooped over near it and came down.

Then our captors let go of the handles of the baskets, produced sharp pieces of crystal, and cut the withes which bound our hands and feet.

Evans, Boyle and I stood up and began to stamp and rub our wrists to restore the clogged circulation. Then I noticed another thing. Upon restoring us to liberty the Neptunians seemed to have lost their surly dispositions. They were smiling and cheerful once more. Perhaps they had not really been so angry as they had pretended. It may be these men merely wished to show us they meant business and would stand for no foolishness on our part.

Ahla also reappeared once more. She seemed much relieved to see we were no longer tied and that we had come to no harm. She waved her arm.

"Arton," she said. "Him, Arton."

We turned and caught sight of a shriveled man, with white hair, advancing toward us. He was very old. Even his wings seemed moulted with age. Walking beside him was a younger man, tall, with long, wavy black hair. His white feathered wings were tipped with black. By Neptunian standards he might have been called handsome, for he had a high-bridged nose and deep-set eyes.

"Him, Charlon," explained Ahla. "Charlon."

Charlon reached for Evans and twisted him about to inspect the Earth man. Evans flung off Charlon's hands with a snarl.

"Keep your paws to yourself, my bucko," he warned.

"Easy," I said, in the flier's ear. "No use of starting more trouble. Once was enough."

"I don't like him," growled Evans, with flashing eyes. "I'll end up by taking a poke at him."

The old leader had advanced to look us over and decide what to do with us. At this moment a sudden commotion broke out. Everyone whirled and began to gaze at a green-yellow blob in the sky. Another group of flyers were arriving. Presently I could see that the group consisted of eight of the Aerite men. And they were bringing in a prisoner. More Neptune inhabitants appeared until the crowd numbered about eight hundred.

GRIM men with the captive landed, and again those sparks flashed from their feet. At the sight of the sparks a murmur of dismay arose from the Neptunians near me. Queer! I had thought of course the sparks were a natural thing. But it did not seem so.

The excitement over the arrival of this captive turned my attention to him. He was a gray-black, sinister looking man, obviously of a different breed from everybody else here. He wore a black garment of woven flexible metal and his wings were bound with rope. Furthermore they were not feathered wings; they were black, greasy, shiny membrane. Wings like those of a huge bat. I had a glimpse of his defiant face as he lay on the ground, his bullet head of close-clipped black hair, and oval face. A pointed chin with a hawk nose and arched brows, gave him a villianous appearance.

"Him, a Gar," Ahla said.

He certainly did not seem popular. With angry cries a half dozen of the winged girls fluttered forward, trying to maul the man on the ground. But the old leader and Charlon waved them back.

"Wonder what it all means," said Boyle. "They sure seem to hate that bat-winged fellow."

That remark was never answered, because at this moment the winged men conducted us into the crystal palace and began to act the part of hospitable hosts.

They fed us and gave us a room under a roof of saffron glass. It was old Arton's dwelling, where he lived with half a dozen or so of his Counselors, some servants and others. Ahla signified she lived here also. And so, evidently, did this fellow Charlon. The building was a big, two-level affair, divided into cor-

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ridors and many rooms. The one we had was furnished with three couch-like affairs, and low reclining chairs with sides, but not much back, where our wings should have projected.

After being in it for a while we found we certainly did not like this room. We rolled and tossed on the couches. Occasionally I could hear Boyle's complaints.

"This light," he groaned. "How can anybody sleep in a place like this?"

Trying to sleep on a flood-lighted stage would have been easy compared to this. The whole crystal city of Aerita was built of crystaline blocks. Whether they are radioactive or not I do not know. Weird, luminous transparent slabs. They glowed with a vivid yellow radiance. After a while it got you. There are mines of this luminous stuff off in the mountains, we later learned, and the Aerites cut out the slabs and laboriously cart them to the city.

It could be a refined and neat form of torture. But the Aerites did not mean it that way. I tackled Ahla about it when she brought us our breakfast, consisting of various vegetables resembling mushrooms in taste.

Several miserable days and nights passed. We felt like prisoners in that glaring room. Then Ahla came and led us proudly out across the city roof.

HERE we found three shacks, standing near each other, one-room affairs built of dried, woven vegetation. There was a cabin room for each of us.

How many days went by now, like this, I have forgotten. Although we were not considered to be prisoners, usually an Aerite guard watched us when we roamed around the city garden to make sure we did not fall off the cliff or hurt ourselves.

These things made Chick Evans bitter.

"I thought we came here to get Uradonite, Alan?" he complained. "How can you even begin looking for it unless some of these people carry us around?"

Boyle had fallen into sullenness. He did not talk much but did suggest we persuade them to carry us to the *Nomad* so we could try and repair it.

"That's my idea exactly," I agreed. "They're learning our language fast. We'll be able to make some plans in a little while."

Old Arton came to see us nearly every day. So did Ahla, of course; and several of the others. Charlon came also, with his contemptuous smile.

Soon we learned something about these Aerites, and about their enemies, the Gars. It came to us bit by bit, as Ahla and Charlon and the others learned our language.

Then we discovered an enigma. The Aerites were the dominating race of Neptune. They were not advanced in science but seemed to go in for the arts. Like the Golden Age of Greece. There were several of these crystal cities, of which Aerita here was the largest.

The Aerites had the best region, the best land of Neptune.

"Gosh," Chick Evans exclaimed when Ahla told us that. "If this is the best, what must the rest of it be?"

"There are Black Forests," Ahla said. "But in them, no human can live. And there is the land of the Gars. The Gars live underground."

Except for savages that flew and nested in nomadic style on the distant metal deserts, only one other race existed—the Gars. So far we had seen only one Gar, the bat-winged fellow. The Gars were a less numerous people, but far more scientific than the Aerites. Their main city, called Mok, was far up in the mountains, built entirely underground.

"Well, what's wrong?" Chick Evans demanded of Ahla. "You people are in some sort of trouble. We saw that the first night we got here. You're afraid of the Gars?"

She smiled her whimsical smile.

"No, it is not that. We are now having trouble to fly."

"Trouble flying?" Chick Evans echoed. "That would be a catastrophe here, sure enough. Was that why you fell on that ledge, the night you found us?"

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SHE nodded. "Yes. We feel so heavy in the air now. For one of your Earth years we have grown heavier. Soon our wings will not carry us."

"An intensification of gravity," I said.

"That's what hit us when we were trying to land the *Nomad,*" Boyle agreed. "Some phenomenon of nature."

Now we had the explanation of those sparks, when the flyers' feet touched the ground. What a weird enigma. Certainly it was a thing of menace . . . Wings of Icarus. The phrase occurred to me. Just as the Spaceships of Earth were becoming useless, so here on Neptune these harassed Aerites were in much the same plight.

"Now that we do not fly so well," Ahla said, "the Gars have begun to raid us."

We had heard about those raids. Several times during the time of sleep, small parties of the Gars had come. Food concentrates and several of the young Aerite women had been carried off. They had been isolated, small raids so far. There had been talk among the Aerites, of reprisals, but nothing had come of it. Old Arton, we could see for ourselves, was a peace-loving, impractical fellow.

What was worse, so far as we could learn, the Aerites apparently had no weapons.

Our own weapons—just a few of the Pierrot-type, oscillating-current flash-guns—were in the *Nomad*. They would be de-charged by now, useless unless the chargers which we had in the *Nomad's* little workshop had not been damaged by the fall.

"Do you think the Gars will try and conquer you?" I asked Ahla. "It's dangerous to be without weapons."

We were in the garden outside my hut. Charlon had come to join us. He had been sitting silent, with his great white wings, black-tipped, spread out behind him.

"Never would the Gars do that," Charlon put in abruptly. "Such talk of danger does not make sense."

"That's what I think," Boyle agreed. I noticed his gaze now upon Charlon, filled with admiration and awe for the supercilious Aerite.

Boyle certainly seemed to like Charlon.

"Anyway," Boyle added, "when you start reprisals, you get into more trouble."

"Maybe. Maybe not," Chick Evans put in. "Maybe, if we let the Gars alone, they'll get to thinking they can do anything to us they like. Then there'll be trouble for a fact."

A cold sneer curled Charlon's features. "You Earthmen are just cripples," he said. "Cripples do not live long here."

This comment sent a ripple of fear down my spine. What did Charlon mean by that?

CHAPTER IV

Wings for the Helpless

JUST cripples. That angle of it was getting into me more and more.

Then a startling idea occurred to me. Something I might be able to accomplish, if Ahla would arrange to have us carried to the *Nomad*. So far, old Arton had refused and I wondered if Charlon had had a hand in that. Perhaps Arton thought if we repaired the *Nomad,* we would depart, and he would lose all our scientific information. Ahla thought it was something like that.

"Promise him we won't go," I told her. "Not at once. We want to find some Uradonite, if it exists here on Neptune."

"If you give your word not to depart I think he will let you go back to the ledge," the girl said.

A few hours later Arton sent us permission and twelve Aerite men carried Chick Evans, Boyle and me back there in the cradles. Ahla flew with us. We found the little *Nomad* lying askew among the crags on that ledge of rock just as we had left her. We had made preparations to remain at the ledge several days.

"Old Arton needn't have been afraid

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but what we'll be here when they come back for us," observed Chick Evans, as he gazed at the precipices, "once here, we're marooned."

A quick inspection of the *Nomad* told us we would need at least a month to repair the wrecked mechanisms. But that was not what had brought us now.

My plan was to quit being an Earth-cripple . . .

We worked hard for three days, cooped up in the tiny workshop on the *Nomad*. Boyle and Chick Evans were asleep when I put the finishing touches on the apparatus. I went up to the cubbies and routed them out.

"Finished it. Come on, let's see if it works."

My plan was to apply the principles of the Nullo-grav units, which made the *Nomad* weightless, to an apparatus in the form of a belt. You might think that a simple proposition but it was not. The Nullo-grav plates of the *Nomad* were not damaged and I had no trouble getting out three small sections. If you put one like a shield, under your feet, it cut off gravity, so that your body, above it, was weightless. But that was not a practical device in this case.

I had to contrive a different application of the magnetic forces involved. In effect, I created looping lines of force, something in the fashion of an old-style electro-magnet. These lines of force, streaming out from the belt-plates and looping back again to the opposite poles of the Nullo-grav units, took on the nature of a magnetic field of sufficient area completely to envelope the human body which had Nullo-grav units placed at its middle.

Swell theory, but would it work? I put on one of the belts. "We won't be Earth-cripples after this," Chick Evans exulted. "Take it easy now, Alan. Don't go up too high."

We stood on the dim rocks, outside the *Nomad*. I switched the current into the belt which I had strapped around my waist. Then I jumped gently upward. It worked all right. I sailed up about fifty feet, turned part way over and hung poised. "Swell," Evans called up. "We did it! Easy now, Alan. Desensitize it slowly."

I LET the current-pressure partially out. Slowly I came down, landed with quite a bump, but I was not hurt.

"Good," Boyle said. "Now, the wings. Shall I try them?"

"Let me." Chick was like an excited child.

For wings we had stretched an air-proof fabric upon light frames. With one of the three small, immensely powerful Mansfield motors, from the *Nomad's* ventilating system, I had constructed a mechanism, which could be strapped behind our shoulders, to flap the wings, and to hold them rigid for soaring. With completely weightless bodies to propel through the air, the wings and the Mansfield seemed adequate for the job.

Evans tried them first. He went up, flopped for a time like a wounded bird, or a fledgling just learning to fly. Then

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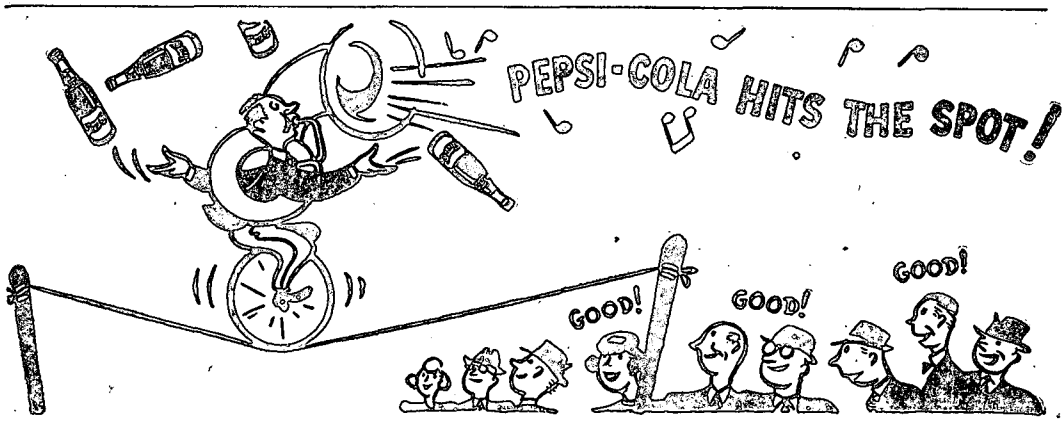

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he came down again.

"Absolutely grand," he enthused. "All we need is a little practice and we'll outfly any of these Aerites."

With weightless bodies, and mechanical, untiring power, we certainly would.

"They'll have to respect us now," Boyle said. His dark eyes gleamed. "What an Earthman says will have some importance, now."

Ahla and the Aerite men came back for us a few hours later. We did not tell her what we had done but she could see everything was all right by our looks of triumph.

"Tomorrow we'll show you something," I told her.

Ahla flew beside my cradle as we winged back for Aerita. It was after the evening meal, before the time of sleep. I noticed that the sky looked different, great wheeling dark clouds, shot through with orange-green glare.

We landed on the dim city roof. I unloaded the three precious Nullo-grav belts, the folded wings and the tiny mansfield motors and stowed them in the darkness of my one-room hut.

"That sky has the look of a Black Storm," Ahla said, as she was leaving us for the night. "These storms come slowly, but perhaps it will be over by tomorrow."

"If we can't demonstrate tomorrow, we will get busy the next day," said Chick Evans.

A Black Storm. We had heard about them, but had never seen one. They brought the Neptunian rain. Neptunian rain, we had heard, was peculiar stuff. Heavy and sticky. But after it hit the ground it absorbed air, thinned out into water.

Puffs of wind rustled the spindly trees when Ahla left us for the night. Chick Evans and Boyle went into their huts. We were all of us pretty well exhausted by the hours of work, back there at the *Nomad*.

Though exhausted by work, I could not sleep, for a while. Then I dropped off.

What awakened me was a distant sound, but faint, like a Titan groaning.

THE Black Storm had arrived. The grumble, up in the sky, rose suddenly into a deafening scream. Then after a second or so it moaned away into silence.

The storm was coming, sure enough. The trees of the garden outside my door rustled with puffs of wind. I could hear little plops of a rain-flurry. How long I had been asleep I couldn't guess, though it seemed quite a while. Lifting myself to an elbow, I glanced at the open door of my hut. A weird orange glow filled the sky outside.

Suddenly my nerves grew tense. Something was moving here in the darkness of my room. Next I heard a thump as if someone had stumbled and made out a shadowy form in the corner, bending down where I had stored the Nullo-grav belts and the wings.

Leaping erect, I lunged forward. Too late. The figure straightened, dropped the Nullo-grav belts and jumped to escape. A winged figure; I saw that much. And at the doorway, for a second the wings, head and shoulders were silhouetted against the orange glow.

Charlon!

"You dirty crook, I'll fix you," was my shout.

But Charlon was gone. From the doorway I thought I saw his skulking, jumping figure. Then a blob rose into the air, winged up between the waving trees and vanished.

For an instant I stood there, quivering with anger. Somehow Charlon had found out about our belts and wings, and had tried to make away with them.

The city roof-garden glared with orange-green light from the sky. Up above, funnel-shaped clouds wheeled, riven by a darting orange lightning, followed by mighty thunder.

The Black Storm swooped down. I started for Chick Evan's cabin to tell him about Charlon.

Then from across the garden came a woman's scream.

"Ahla—Ahla!"

That galvanized me and I forgot about Chick Evans. I dashed for Arton's palace. Winged figures burst from its front

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entrance, half-running, half fluttering, and gathered by something on the ground. An Aerite man. His body lay crumpled between his still-quivering wings. He was a ghastly sight. Around his neck coiled a thin wire like a tight-end spring, cutting into his throat so that the blood had spurted. His purple-black face goggled up at us.

ABOUT twenty feet or so away we found another dead Aerite, slain in the same manner. Wild turmoil reigned around me.

Chick Evans came dashing up. Off under the trees I could see Boyle approaching.

"What's the matter, Alan?" asked Evans.

One of the Aerites pulled at my sleeve. He turned out to be one who could speak English.

"The Gars did it," he yelled. "They raided us."

Shoving into the front entrance of the crystal palace I tackled another group of terrified Aerites for more information. A dead girl was lying there, her wings still tied together with a green withe. Her throat had been cut with wire.

I seized another girl whom I knew had learned a little English.

"Where is Ahla? Which is her room?"

She proved to be quick-witted for she did not waste time asking questions. She turned and motioned for me to follow her. Down a corridor, we came to Ahla's room. Drapes at one of its big windows had been torn away. Yet despite the storm, through the crystal walls seeped enough of the orange glare to afford mute evidence of what had happened.

Ahla was gone!

CHAPTER V

Vengeance for Wrongs

HORROR at what had happened seized the city during the next few minutes. The whole populace seethed with excitement. Figures fluttered up the mountain until the garden and Arton's house here were jammed. The attack had come a short time before. One of the girls had heard the raiders. She said a party of Gars had tried to break into a vault where Arton kept the city weapons. One of the Gars had been killed down there.

Several girls had been abducted. Among them was Ahla.

All of these facts I learned a few minutes later when I rushed out of the palace. Chick Evans and William Boyle were standing there with the old ruler, Arton, watching the Aerites trying to fly. They had been calling us cripples. Now if I had been vindictive, I could have hurled the same taunt back at them.

The Black Storm now was raging in all its fury. Gigantic gusts of wind were rushing around the nearby mountain peaks. Overhead flared the incessant flashes of lightning. Arton's wrinkled face was a picture of consternation as he watched winged man after winged man hurled to the rocks when he tried to take off.

As for me my mind was working fast all the time I was observing these things. Our weapons in the *Nomad* were useless and de-charged. That we had learned during the last few days. It would take a long time to restore them to good condition. But we must do something about Ahla—quick!

I nudged Evans and Boyle to attract their attention.

"Come on back to our huts," I yelled above the howl of the storm. "I have an idea."

Then I raced away, without a backward glance. But I was safe in doing that. I knew they would follow.

The three of us reached our huts in jig time. We dashed inside of my living quarters and I saw that the belts and wings were still there. Then I remembered what Charlon had tried to do and told them the facts. Evans was angry but Boyle refused to believe it. He certainly admired Charlon. A quick examination convinced me that the winged man had not succeeded in injuring the equipment. Possibly I awakened too soon.

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We donned the contrivances and ventured forth in the shrieking wind once more. No one from Aerita was there to witness proceedings. So much for the grand triumphant demonstration we had planned.

Turning current into the Nullo-grav belt I leaped into the air and started the Mansfield motor. The wings began to flap. Evans and Boyle followed my example. Gusts of air tore at us.

"Into the wind," yelled Evans, above the gale. "It's our best chance."

Above the tree-tops the wind proved to be steady. We soared into it with locked, motionless wings. Our entire practice consisted of about sixty minutes back there at the *Nomad*.

"Down lower," called Boyle. "If the Gars have been forced down like the Aerites, we may see them."

Our flight was a wild one, a phantasmagoria of orange-green glare from the sky, the wind tossing us, and beneath the tumbled rocks. The storm-glare painted them yellow and wind howled past the rock-spires.

How could the Gars, carrying their captives, stay aloft in a wind like this? It seemed obvious they could not. But as I stared down upon the wild bleak terrain, my heart sank. There were a million places where humans could hide.

The city was a dull glow in the murk off to one side. For a time I managed to stay near Evans and Boyle.

SOON I realized the wind was carrying me backward. Next I lost my balance. Weightless, whirling end over end, I was blown away. Then dizzily I had righted myself once more. It seemed I had heard Chick wildly calling at me, his voice faint in the roar. Soon I lost both Evans and Boyle. Later I noticed the city glare had fallen far behind me.

I suppose in that blur of chaos several minutes had passed while, like a feather in a gale, I was whirled along after that. The Mansfield still thrummed. Nevertheless I realized that I was flopping. One of the wings had broken and collapsed. Yet the Nullo-grav belt held me aloft. Then I missed the mountain spires and staring down noticed a grey expanse a couple of hundred feet beneath.

It was the Black Lake. As far as the eye could reach the sullen expanse of water stretched away. Rain began to pour down, Neptunian rain, weird, sticky, thick. It seemed to be something like heavy water. Soon I realized the weight of it was bringing me down. The weight of it was like the ice which used to form on the wings of ancient Earth airplanes. The next instant I had splashed into the lake.

The lake water was normal stuff, not heavy. When I popped to the surface I managed to get rid of the Mansfield which I tossed away. Then I clung to the wings. The Nullo-grav unit hissed and bubbled but kept working. Thus for some time I drifted along, propelled by the gust of wind until finally I felt ground under my feet. Far off in the murk I could see a dark spread of spindly forest and a white line of surf.

Then I realized where I was. Often the Aerites had told me about the Island of Yugs, enough for me to recognize certain features at a glance. So I worked my way up into the shallows and managed to crawl up above the waves upon a beach of metallic sand.

That sticky rain made breathing so difficult I might have smothered to death if I had not found a rock recess and crawled into it. For a long time I lay there, listening to the roar of the storm and watching the flashes of orange lightning.

A blob of black, moving near the edge of the jungle, finally attracted my attention. For a moment I thought it was one of these unkillable Neptunian slugs I had heard so much about, but upon peering at it more carefully I recognized it as a Gar. Then I saw another blob. There were two of them.

They were dragging something in white after them across the sands. With a leap of pulses I stared at that white object. It was the captive Aerite girl, Ahla.

A gust of anger brought me lurching to my feet and sent me toward them. As the metal grains rattled under my feet

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they sent out flashes of blue light and that betrayed me to the Gars. As one man they let go of the girl and turned.

The shrill shriek of Ahla rose high above the storm.

"Alan, save me!"

This appeal seemed to turn me into a madman. Lowering my head I charged at the nearest of the two Gars. My training, received from the interplanetary patrol, stood me in good stead, for I brought a certain wrestling trick into play. The next instant the Gar sprawled lifeless upon the ground with a broken wing and a dislocated neck. Instantly the other of the bat-winged men closed in.

HE proved to be a vicious fighter and he meant to kill. But my heavier weight and better science won out. I seized him about the middle and applied certain leverages. Something snapped. When I tossed him to the ground he was dead.

The girl had remained kneeling upon the sand, with her hands clasped in an attitude of appeal, watching. I sprang to her side.

"Ahla, dear, are you all right?"

She nodded her head, still numbed by the shock of her experience. Then I saw that her wings were fastened together like those of a trussed pigeon. It was a matter of only a second or two for me to free her and lift her to her feet.

Then I guided her beneath the sheltering branches of an eck-waz tree, out of the sticky rain. Within a few minutes she was able to talk. And by that time, the rain had stopped, too.

Then in trembling tones she told me how she had been abducted by the marauding Gars. Soon she had regained her cheerfulness.

"The rain has stopped, Ahla," I said, at last. "Let us take a look around this place and see if we can't get back to the city."

Seizing me by the arm, the girl emitted a terrified scream and pointed.

Turning, I caught sight of what had frightened her and my heart seemed to stand still. Slithering out of a forest came a monstrous gray thing, about one hundred feet long. Raising its forked head, it glared at me out of its ring of eyes, and then glided toward us.

"Watch out, it's a terrible Yug," shrieked Ahla. "They are unkillable. If you value your life don't let it touch you."

But I needed none of these warnings to make me sheer off. One look at the fearful creature had me scared stiff. The only reason I stayed there was because of the girl.

But I had forgotten Ahla could fly. Seizing me by the hand she gave a little hop and took off from the ground, still holding tight. Game girl. She managed to drag me up fully twenty feet above the metallic beach before I recovered my wits. Then I switched on the Nullo-grav belt, decreased my weight. If I had thought quicker we might have been all right.

But under the circumstances I had acted too late. The monster slug lifted its gigantic head and struck. So I snatched out one of the Neptunian circular hand saws which was attached to the tool-kit of the belt and went to work on the Yug. And all the time Ahla was striving to help me.

Her wings were wildly beating as she struggled to lift me higher. As the monster lunged at us, I managed to get the blade of the saw whirling.

Whir-r-r!

That whirling blade cut into the gray head like a trowel slashes into wet mortar. The saw-knife, my hand, my arm, all sank deep into that foul head and throat. It was nauseous. The horrible slug-flesh opened up like gluey pulp and greenish blood spurted. The flesh fell apart, but it clung to me. The monstrous slug squealed as my blow ripped its throat apart, silenced it. Ahla, too, was screaming.

Then I realized how wildly her wings were flapping and how frantically her hands were pulling at me. It was a blurred chaos of horror. The huge head of the giant yug fell to the beach below but the hideous thing refused to die. The mighty coils still remained, as danger-

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ous as ever. As the head tumbled down, and I brushed the gluey green pulp from my face, a gray loop lashed out and dragged us back to the beach.

"Ahla, fly out of range," I yelled, using the saw for all I was worth.

SURELY she could break loose and get away? But even while fighting I became aware she also had been engulfed by the pulpy, snake-like rings. The tenuous, flimsy stuff separated easily into writhing segments. But always fresh coils came back. Truly the monster seemed to be unkillable. Suddenly I discovered the pieces which I had flung away were coming at us again.

Although no longer one hundred feet long, another head appeared and reared at us. A dozen smaller newly-formed segments, with heads and yawning sucker mouths, now came plunging into the fray. A sucker-mouth fastened for an instant upon my arm. Its eyes glared. In another instant that sucker mouth would have been drawing my blood had I not slashed it off and cut it into bubbling, viscous pulp.

For a fantastic moment I thought the end had come. Ahla scrambled erect beside me. She was gasping, with her wings feebly flapping. Strings of gray stuff were like a tangle upon her. And all around us other heads, eyes and looping, lashing gray segments were plunging at us!

"Alan, yank loose so I can lift you," she called out.

Her terrified cry spurred me to renewed efforts. Lift me? How could she lift me out of this horror, exhausted as she was. Then I remembered the Nullo-grav belt. I could make myself light as a feather. So I switched the hissing current into the belt. Then I had staggered free, and gave a jump that carried me several feet into the air.

A coil whirled at me like a monstrous lariat and missed. One of Ahla's beating wings struck me and knocked my almost weightless body sidewise. But I had caught at her robe and let out a yell.

"Ahla, try flying now," I shouted

The noisome flesh of the slug still clung heavy upon her. My feet touched the rotks and I shoved for all I was worth. The impetus helped to launch her into the air. Then we broke free and I looked down. Beneath us was a nest of leaping, writhing little slug-segments, a horror of darting heads trembling with eagerness to get at us.

Shuddering, we rose above the black spindly tree-tops, as Ahla winged laboriously along with her body almost horizontal and my body dangling under her as she clung to my hand. Fifty feet up we climbed, then a hundred.

"Alan," she called out suddenly. She was gazing down at me, puzzled. "Alan, there is no weight to you."

"No, this device I'm wearing does away with weight," I shouted above the howl of the storm. "It is called a Nullo-grav belt."

"Are you joking?" asked the girl.

She could not understand it, of course. She could only stare at me as though I had performed some miracle.

"No, I have no weight now," I insisted. "A short time back I had wings, too, Ahla, but the storm ruined them. I had wings and a little more, and I could fly. I will fly again, better than any of the Neptune people. You'll not call me an Earth cripple, then Ahla."

OVER the island the full force of the wind hit us. I saw the black fantastic tree-tops of the island sliding backwards under us as we were blown away from Aerita. Once, vainly, Ahla tried to wheel and head into the wind.

"No use," I warned.

"I have not enough strength," the girl admitted. Panting, as she struggled on, she gazed down at my Nullo-grav belt. "That was what saved us from the Yugs, Alan? Never have I heard before of any human escaping from them, if once they had caught him."

"Yes, the Nullo-grav belt saved us," was my reply.

She struggled on, towing me, but I could not help her. My only alternative was to dangle like a feather in the wind. The island presently disappeared behind us.

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It was impossible for me to help her. Never before had I felt so helpless as I did at that particular moment. Beneath us stretched the sombre waters of the great Black Lake. Under the lash of the gale we could see the spray whip away from the top of the waves and disappear in the gloom. Although it was not raining I dreaded that it might begin again at any moment, and that would have meant disaster. I shuddered to think what the added weight would have done to this frail girl.

Ahla was panting, exhausted. Surely she could not keep on like this much longer.

"Air-heaviness—very bad here," she managed to gasp. "I feel so strangely heavy."

"Just try and keep from falling. Let the wind blow you. Do I make it more difficult?"

"No. You are nothing."

"Keep going," I said. "I believe there's land ahead."

I was holding on the edge of her drape now, just enough to keep us from being separated in the wind. Then despite her efforts I saw the black surface of the sea draw nearer. She was losing altitude. But the storm, at least, had lessened. Fewer flares of orange lightning lanced the sky. Already the tossing waters had begun to subside.

At this moment, just as my hopes were soaring, the girl's strength gave out completely.

She gave a hysterical gasp and began to flop wildly.

"Alan, I think I'm going to faint!"

As she spoke her wings fluttered, folded and she began to fall like a stone, dragging me after her.

CHAPTER VI

Traitors in Camp

NOW I must go back to tell what was happening to Chick Evans and William Boyle, as Chick later told it to me. Evans saw me lose control, as the three of us fought the wind over the city of Aerita. He saw my winged body go whirling away like a driven leaf. Evans shouted. He even made an effort to turn into the wind and follow.

"Careful," shouted Boyle. "Watch yourself."

Evans almost snapped his wing-struts as he struggled not to lose his balance. That terrified him, and as Boyle soared at him with another warning, he steadied and kept on into the wind. He dared do nothing else.

It was a chaos of horror to Chick Evans, there in that storm.

Next came the rain, ghastly, gluey stuff. A gob of it struck Chick Evans' face, and nearly suffocated him. Next he became aware of the heavy rain bringing him down. At a little distance he saw Boyle's body flop down also. Both of them were falling.

There was an uprushing vista of black-green rocks and then he crashed. The wings crumpled, smashing under him. For a horrible second he rolled on the rocks, with the spluttering Mansfield motor racing at his shoulder blades. Then the wind flattened him motionless.

"Chick Evans, are you all right?"

Boyle was calling from nearby, where he also was lying with smashed wings. Chick shut off the Nullo-grav belt and crawled over to Boyle.

Evans noticed a cave nearby and pointed it out to Boyle. They crawled toward it and then Chick Evans found the wind was sucking into this opening as though there were a vacuum inside. It was a maelstrom of roaring wind.

"Not here," Chick Evans gasped as he gripped Boyle. "This suction is too strong."

Too late. The vacuum caught them. Somehow they managed to cling together as they were pulled into the darkness. For a time they slid downward on a smooth metallic surface. Then they shot into a denser blackness of a subterranean grotto. On its smooth floor wild wind-currents tossed them around like leaves. Then at last, bruised, dazed, only half conscious, they were able to clutch a rock and hold themselves steady.

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For another nameless time, they must have huddled silent, panting.

"Less wind," Chick murmured at last.

"Yes. Seems so."

There was more light here and by it Chick Evans saw that they were in a tunnel near a larger grotto. They crawled toward it.

Now they tried to plan what they ought to do. They resolved to make their way back to the surface and return to Aerita. But how? Their wings were smashed and the Mansfield motors were gone. But they still had the Nullo-grav belts. If the storm was over, from the surface rocks they could leap into the air. Perhaps the Aerites would see them and come to the rescue.

"Chick, look there," suddenly exclaimed Boyle.

AS HE spoke Evans noticed an oval blob on the rocky grotto floor. The pilot stared at it with startled horror. Twenty feet away was what looked almost like a human eyeball, a little round thing, with veins on it. It rested on the rock-ground, becoming more luminous every moment. The eyeball glared at them menacingly, and soon they saw it was supported by tiny crooked legs. Then slowly, with jerky, hitching steps, it marched toward the two Earth men.

"See, Boyle, there are others," cried Evans.

Like lights winking on, abruptly the dim grotto was full of the little glaring eye-creatures. There seemed to be a thousand of them.

The two men became aware of another danger. It was the roar of an advancing flood. The eye-creatures evidently heard it too for their myriad glaring gazes wobbled. They seemed confused.

The roar grew louder. It seemed to be coming from the oval tunnel entrance. Bubbling viscous liquid came pouring into the grotto? Chick Evans saw it first. It was a torrent of that heavy-rain water. Hissing it poured from the opening, spreading out like glue upon the rocks of the grotto.

Now the eye creatures took alarm. They scurried away, bouncing on their crooked legs . . .

"Quick, we must escape," yelled Evans to Boyle.

"We can't," answered Boyle. "We're cut off."

Chick Evans whirled and saw another torrent of the heavy-water was pouring into the cave from another opening.

Chick Evans and Boyle gazed wildly about. The grotto was filling rapidly. Then to the left, he noticed a tunnel exit which the water had not yet reached. He grasped Boyle.

"See there," he shouted. "We might be able to get out that way." Both men jumped for the exit.

That little tunnel opening was a blur in the turgid, roaring dimness. Evans fumbled at his belt. "The Nullo-grav will render us weightless," he gasped. "We'll break out of here somehow."

He sent a current into his belt. As he felt his body lighten, he bent his knees and leaped. Like an arrow his body sailed through the choking fumes, struck a ledge up by the opening where he clung, panting. A moment later he heard a thud as Boyle joined him.

"That was a narrow squeak," Boyle managed to gasp.

The lava-like stream, as it progressed through the darkness, seemed to thin out as it absorbed air. Rapidly the gluey quality disappeared—and it turned into normal water. Chick Evans dipped his hand in some and noted the difference.

Then the two men noted that the newly formed water was rising more rapidly than before. Desperately they turned to escape. But this move came too late. Hardly had they stumbled more than a hundred yards through the dark tunnel when, with a renewed roar, the water rushed in after them.

ROARING, the flood snatched them up and hurled them onward like helpless chips. Overhead the dim roof was visible as they were carried forward. Next the passage made an abrupt turn and they were dashed against the rocky walls. After that the two men lost consciousness.

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When Chick Evans regained his senses, he realized the stream had carried them into the open air. Boyle and he were lying in a little pool of water a few inches deep. A dim dark vista of wet rocks showed around them. Overhead, the sky was visible, speckled with wheeling, yellow-green storm clouds. But the fury of the storm evidently had passed. There was no rain, no wind. Beside him Boyle shivered.

"All right now, Boyle?" murmured Evans.

"Yes, I guess so," Boyle faintly responded. "Thought we were gone. Thanks for what you did."

For a time they remained silent, still shaken by their experience. Chick Evans sat up. "Where are we?"

The same type of wild, precipitous Neptunian landscape surrounded them. Chick Evans' heart sank. They seemed to be nowhere near the city of Aerita. Those distant, looming black mountains —Chick was positive that he had never seen them before. How far had the subterranean torrent carried him and Boyle? He tried to guess at it, but could not.

Their wings were smashed so the two men took them off, cast them away. They also disconnected the now-useless Mansfield motors.

"Well, that's the end of that," said Boyle bitterly. "Just Earth-cripples again."

For a few moments Boyle fell into moody silence. "I was thinking, Chick. Wouldn't you like to be somebody important, here on Neptune?"

Chick stared at him.

"What do you mean?"

"These Aerites seem to be losing their ability to fly," said Boyle. "The Gars, on the other hand, don't seem to be bothered in that way. If they keep on they'll be the dominant race of Neptune. We can't furnish Nullo-Grav belts to all the Aerite race and we'll soon have to make some kind of a choice. Back on Earth, all my life I've wanted to be someone important and the smart guy is the one who gets on the winning side."

"What are you driving at, Boyle?" asked the astonished Chick Evans.

"You saved my life back there in the grotto and I'm grateful. I've been thinking I could show you a real opportunity to—"

BOYLE never had a chance to finish the sentence. From among the rocks close at hand came the faint sound of a moan.

It was a human voice.

"What is that?" cried Evans, leaping to his feet.

The sound came again. Then in a rock shadow they saw something was moving. A form tried to rise up and then fell back again. The two men hurried forward and discovered an Aerite girl. She had evidently been lying unconscious. She was moaning faintly now—seemed to be dying. Her white wings were bound.

"She must have fallen from the air," gasped Evans, in horror.

Her little body was broken, weltering. She saw Chick Evans and Boyle bending over her.

"You are the Earthmen," she murmured faintly.

It was a friend of Ahla's. Evans recognized her. As he bent down, she gasped, "You—be careful. The Gar city of Mok—that red glow so near—" Evans glanced in the direction she indicated and noticed a ruddy radiance glowing in the sky.

"So this is Gar country and that is the city of Mok?" Evans asked her.

"Yes. And you tell our leader Arton—"

The faint words stopped. "Yes?" Evans prompted gently. "Yes, Jara. What do you want me to tell Arton?"

"Tell him—the Gars—they are going to—to—"

Blood was welling at her mouth. She choked a little. Then her breath stopped and she was gone.

Chick and Boyle stared mutely at each other.

"That red glow is the city of Mok," said Evans.

"Yes, I know it," replied Boyle.

"You know it?" The words died in

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Evans' throat. Boyle stared at the distant dark mountains and the brighter sky above them. And abruptly, out in the darkness a faint violet pencil ray of light was flashing. Its source seemed to be from a point in the air perhaps a mile or so from where Evans and Boyle were standing. It flashed toward Mok, a little waving beam.

A signal!

"Well, what now?" muttered Evans. "That must have been a flying Gar, signalling to the Mok City."

Beside him, Boyle suddenly uttered a cry.

"No, that's Charlon," he said.

Boyle reached into his pocket. Chick Evans stared, amazed, as Boyle produced a tiny cylinder. He waved it. A narrow beam darted from it. He had given an answering signal. The little beam in the sky waved again, and then snapped off suddenly.

Evans seized Boyle's arm.

"What are you doing?" he asked. "What's the idea?"

"That's Charlon," grinned Boyle. "We have a plan. Take it easy and I'll explain."

The flying figure was closer at hand than Evans had thought. He could see the winged blob in a moment. It had turned when Boyle signalled and now it was coming this way. Evans recognized Charlon. And he was carrying a girl. A wounded girl? Chick thought so, and Boyle muttered something like that. Then Charlon descended. He fluttered down on the nearby rocks, putting his burden on the ground.

A wounded girl? But then Chick saw that her wings were bound! Chick Evans really had no chance to get his wits at all. . . .

Betrayed by a friend!

It dawned on him so slowly that for a moment he stood there like a confused child, incredulous. The big figure of Charlon joined them with a fluttering pounce.

"Good," Charlon exclaimed. "So you only could trap one of them, Boyle? The other, that big Alan Frane, where is he?"

IN ANOTHER second the small form of Chick Evans stood bristling between Charlon and Boyle. He had the general idea of it now. But realization had come too late. A weapon that glowed with a hissing glare was in Charlon's hand. Evans ignored it. He stared at Boyle.

"You traitor!" he snarled.

"Why—"

He would have leaped, with flying fists, had not Charlon seized him from behind.

"You're turncoats, both of you," raged the little pilot.

"Easy," said Boyle.

By a sudden effort Evans broke free from Charlon and sprang at Boyle. They struggled.

"Let him go," rasped Charlon. "You stand away, Boyle, and then I will kill him!"

"No, take it easy!" Boyle panted. "No need to kill him."

Against his two much bigger adversaries, Evans did not have a chance. They threw him down on the rocks and then the gloating Charlon seized a chunk of stone.

"Charlon. Wait, there's no need for that."

In the scuffle, Evans heard Boyle's protest. Then the rock in Charlon's hand crashed on his head. The whole world seemed to split into a blinding roar of white light, followed by blank darkness.

CHAPTER VII

In Enemy Hands

AS AHLA dropped like a plummet pulling me after her, I, Alan Frayne, gave myself up for lost. The power of the Nullo-grav belt was not strong enough to bear us both up in the air, as it had been injured during the fight with the slugs. One of the wires had become disconnected. So all seemed over.

The next moment we hit.

But not the ground. The wind had

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blown us over a projecting spit of land and we crashed into the queer spindly branches of the Neptunian trees. They proved to be springy and as soft as cotton, and they broke our fall. It took me only a few minutes to switch off the belt, find the trunk and descend to solid rocks with the unconscious girl. For I had clung to her tightly. If I had let go of her she would have been dashed to pieces.

When I had stretched her out flat she soon regained her senses and opened her eyes. Then I glanced about us. We were in a narrow forest glade.

"You're all right now, Ahla?" I said. "Great. You certainly did your part."

She smiled lugubriously.

"Flying is so hard now."

For a time we were silent as she panted beside me, recovering her breath, resting.

"I'm better now, Alan."

"Yes. Thank heavens for that."

"When the storm is over I can take you back to Aerita."

"I suppose so." I tried to grin cheerfully at her. "Pretty tough, having an Earth-cripple on your hands. But when we get back, I can make other wings." For a time we sat there talking. I told her briefly all that had happened, about the discovery of the raid on Aerita and our new wings. The girl seemed delighted to learn we three Earth men would not be cripples here on Neptune much longer. Then we discussed the general situation.

"Ahla, when the Gars captured you, did you see Charlon?" I asked her.

"Charlon? Oh no. Did they kill him there in the palace?"

"Not much chance, worse luck," I declared grimly. "He wasn't around, not a sign of him, dead or alive. I'd like to get my hands on that fellow."

"What is it you mean?" she asked in surprise.

I told her then how Charlon, just before the storm broke, had come to my hut, trying to steal the Nullo-grav belts and wings.

"That must have been just while the Gars were making their raid," I explained. "He's one of them, of course—a spy. What puzzles me, Ahla, is how he knew about those Nullo-grav units, our wings and Mansfields? No one knew about them except Chick, Boyle and myself. Not even you."

Queer how with the obvious answer to a puzzle right in front of you, still you don't see it. Boyle of course had told Charlon. Chick Evans, by now, could have easily explained that to me.

Charlon, rather than risk himself by helping the Gars as they killed the Aerite guards, had planned to steal my apparatus. Then Boyle would have flown off with him. When he failed in that, during the excitement of the raid, he had evidently met Boyle, and they had planned that Boyle would lure Chick Evans and me into the Gar country so that we would be caught. . . .

I did not learn this until afterward, of course, but that was the general idea of it. . . .

"The storm, almost it is gone now," said Ahla presently. "Then we will start for Aerita."

SHE stopped, stricken with alarm. We both saw the flying blobs at once. Three Gars were overhead, just above the tree-tops when we discovered them. Then they saw us. For an instant they gathered in a group and one of them shouted. Next like plummeting birds they darted down.

"Ahla, get going," I yelled at the girl. "If you stay here, they'll catch us both."

"Alan, I won't desert you," objected the girl.

Precious seconds being wasted. "They'll fly after you and forget me," I gasped. "It's our only chance."

That persuaded her. With flapping wings, she darted up. I crouched back into the thicket where we had been sitting. If the Gars came down at me, here on the ground at least I might put up a decent fight. And I really thought, desperately hoped, the flying Ahla would get away from them. Ordinarily, I knew, a Gar could not fly as fast as an agile Aerite girl.

But they caught her for she had de-

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layed too long. I stared up, my heart sinking with horror. All three of them darted at her. They had spread apart, and as she went up between the tree-tops, I could see that she had a moment of indecision.

She wheeled, started in one direction, saw a Gar diagonally above her, and changed her mind.

That instant of indecision was fatal. Before she could attain any velocity, another of the Gars, like a darting vulture, was upon her. Then she was seized—one of them holding her and the other two flapping beside him. They were only fifty feet or so diagonally above me—the blobs of them silhouetted against the sullen grey of the sky. From where I crouched in the thicket, I could see them plainly, but perhaps they did not see me.

They hovered for a moment, seemingly undecided what to do.

I did not consciously plan anything. In emergencies such as that, one acts by instinct. My saw-knife was gone but while talking with the girl I had repaired the Nullo-grav unit. Although unarmed, I shoved at the lever of the belt and as the current went into it, I made a running leap. By luck rather than skill, I must have timed it perfectly.

Weightless, my body sailed diagonally upward, a fifty foot glide with arms outstretched.

The startled Gars had no time to flop away. I heard their rasping, guttural yells and an outcry from Ahla. Then my arms and head struck them.

Surely that was a weird aerial combat. One of the Gars made a pass at me with a spluttering white-hot knife. I knocked it from his grip and it fell, a trailing sliver of light dropping down through the trees. Then my fist drove into his face. The Gar screamed, his wings flopped and he went down, turning end over end.

His body broke through the spindly tree branches and he landed in a forked limb where he hung, lifeless.

All this happened in two or three seconds. The Gar holding Ahla had fluttered away a few feet and with beating bat-like wings was hanging poised. The other pounced on me like a vulture.

"Alan, pull them to the ground," screamed Ahla.

THE same idea flashed to me. By switching off the current of the Nullo-grav unit and sinking to the ground I would have a better chance. But it was a futile thought. A hissing knife struck my shoulder, ripping the flesh a little.

The Gar fluttered away, came back at me. It was like fighting with a monstrous bird.

Then I managed to seize the pouncing figure. For instant I flailed with my fists, but could not connect. The Gar's talon-like fingers closed around my throat. I was finished and I knew it. Ahla screamed words in her native language. The Gar's ugly grey-black face was close over me. The glare of the red-hot knife in his hand painted his grinning, contorted features. Something Ahla said must have decided him. He twisted his wrist and hit my head with the heavy butt of the knife. It was a terrific blow.

That crushing blow was enough. The black night burst into spluttering stars and I floated off into a vast soundless abyss. . . .

Later, when I regained my senses, I dimly realized I was bound hand and foot lying on the rock floor of a large cavern which was lighted by braziers. They gave forth a red glow. These metal fire-pans were mounted upon shelves in the cave.

Around me moved the figures of many Gars.

As my mind cleared I pretended to be in a stupor. If Ahla was near, I wanted a chance to speak with her. But I did not get that opportunity.

A figure stooped over me and removed my Nullo-grav unit. From beneath half-raised lids I saw it was Charlon. Then Charlon and two or three of the others led Ahla away. Two of the Gars picked up my bound body and carried me along a tunnel corridor. Bars clanked as the Gars opened a door and rolled me in.

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Then the door closed, the bars clanked and they were gone.

I opened my eyes. They had left me in a cell equipped with a grilled window and metal furniture. Against one of the rocky walls stood a low couch. Upon the couch sat a man who stared silently.

As the door closed, he jumped to his feet.

"Alan Frane," he exclaimed. "So they caught you also?"

It was Chick Evans.

There was water in the cave-cell. Chick Evans bathed the dried blood from my hair.

The blow had been vicious but had left only a crack, but it was just a scalp wound.

"This stuff on your face, what is that?" he asked.

"I guess they drugged me," I said.

He wiped it off. My shirt was burned. The flesh of my shoulder was ripped.

I told him then what had happened, that Ahla had been caught and was here. "Charlon's in this place also," I said. "He's a traitor, Chick."

"I know it," said Evans. "You don't have to tell me."

WE TURNED our heads as the bars of our door clanked. It opened and two Gars came in. They stared as they saw me sitting up, with Chick washing me.

"He's all right," Chick said. "Get out of here—we don't need you."

Evidently they did not understand our language. Impassively they searched me and went out again, barring the door.

Then Chick Evans told me what had happened to him and Boyle. He also told me that Boyle had betrayed us. I stared.

"Well, I can understand it," I said at last. "Boyle was always a queer, moody fellow. Never could make him out. You always seemed to like him, Chick."

"Yes. I have been a fool."

Again we heard footsteps out in the corridor. The bars clanked, the door opened. Three men entered.

Their leader was our erstwhile companion, William Boyle.

CHAPTER VIII

The Room of Torture

YES, it was indeed William Boyle. And with him came two Gars, dark-faced sinister looking figures with their folded bat wings and dangling weapons. Suddenly I realized they were body-guards—there to protect Boyle if Evans and I tried to attack the traitor.

"Well, Boyle, you see we're both alive," said Evans. "You brought guards? Good idea. You better keep away from me, Boyle. If I ever get a chance at you, it'll be too bad for you."

"What do you want, Boyle," I demanded.

"Take it easy," said Boyle. "I want to talk with you."

"Talk away," growled Chick Evans. "We can't stop you."

Boyle stood there, trying to brazen things out but only succeeding in looking sullen. He was on the defensive for he could not meet our gaze.

"You remember what I said to you after we escaped from the grotto?" he said to Chick Evans.

"Sure I remember," Evans retorted. "The one who picks the winner and rides with him, he comes out on top. Be on the winning side even if you have to double-cross somebody."

"And you think the Gars are on the winning side?" I suggested. "Is that it, Boyle?"

"Of course they are," snapped Boyle. "There are ways you can help Charlon and me, so I don't mind making an offer to you and Frane."

"So you think we would double-cross the Aerites?" sneered Chick Evans. "After living with them three months, accepting them as friends, and taking everything they can give us. Then you believe we'd kick them in the eye for this murderous bunch of Gars. You can go to blazes, Boyle—"

"All right," Boyle retorted. "If that's the way you feel about it."

"And I saved his life!" Chick Evans

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said contemptuously. "Remember those eye-creatures, Boyle?"

"The *dryns*," said Boyle. "Yes, Charlon has told me about them. Frightening little things, I'll admit. One of the peculiar forms of life here. They sure had us fascinated in the grotto."

"And if they'd gotten you—" Evans began.

"They'd have finished us up, you and me, if they'd gotten us," Boyle agreed. "They weren't eye-balls. Not exactly that. Luminous ball-bodies which made them look that way in the darkness. Charlon says they'd have fastened themselves on us, sucked our blood, and torn us up, like giant ants. When that flood came, they scurried into their holes—like crabs."

"Shut up, Chick," I interposed. "Let me talk to him."

This Boyle was not too smart a fellow, that was obvious. An inferiority complex, probably.

"I won't shut up," retorted Chick Evans. "This is my chance to tell this rat what I think of him, and maybe I won't get another."

"All right, you play it your way and I'll play it mine," Boyle flared. "We'll see who comes out on top."

"What do these Gars think they're going to do, Boyle?" I interposed mildly. "You say we can help you."

"He's an ass," Chick sneered.

CHICK EVANS' extreme contempt was understandable to me. He had always liked Boyle, trusted him.

"You and Charlon think you can force us to help you?" I suggested.

"You don't want to be killed, do you?" countered Boyle.

"We certainly don't."

"Well, you'd have both been killed already, if it hadn't been for me." Boyle had recovered himself now. His swagger came out. "Don't be a fool, Frane. You might as well look facts in the face. Charlon didn't like the idea of you having Nullo-grav belts and wings. But now that he's got those, and you, he'd just as soon kill you as not. He'd rather, in fact."

"But you wouldn't?"

"No. Why should I want to kill you? You can't hurt me, and if you can't see things my way, that's your fault, not mine. Matter of fact, you can be of use to me. So if you don't try to make trouble, Charlon doesn't care."

"Be of use to you? How?"

He sketched it for us then. I kept Chick Evans quiet, and listened, leading Boyle on. It was what I had thought, what I had told Ahla. The Gars were planning a conquest of Aerita, of all the Aerite country. Charlon was commanding them. An aerial army had been prepared.

THE Gars had weapons of their own modern design. The Aerites were decadent, although more numerous than the Gars, but sadly unequipped for war. Ruled by old Arton, who hated violence in any form, the Aerites had let their own weapons rust away underground. And the Aerites, all the time now, were finding it more and more difficult to fly. "They won't have a chance," declared Boyle. "So when Charlon put it up to me to join him, wouldn't I be a fool to pass up an opportunity like this? Charlon is going to do a lot for me. He's promised. I'll be a great man, here in Mok, in Aerita too, when we conquer it."

A naive fellow, this Boyle. But human enough, I suppose. He glowed as he told us what a great man he would be here on Neptune. Earthman, with miraculous Nullo-grav belt, and wings with mechanical power so that he could outfly any Aerite, or any Gar.

"And you, Frane," he said, "I'll be honest with you—I don't know how to renew the Nullo-grav units, and they wear out after a hundred hours or so of use. They do, don't they?"

"They do," I agreed. "And the Mansfield motors do also. So I'm supposed to keep you equipped to be a flyer, Boyle?"

"Exactly."

"Sort of general physician to the crippled conqueror," Chick Evans put in sarcastically.

"Shut up," I interposed. "And in exchange for that?" I added to Boyle.

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"I'll see no harm comes to you and Chick," Boyle declared. "And, Frane, I have other ideas. When this thing is over—it certainly won't take us long to conquer the Aerites—why couldn't you build me a Nullo-grav platform? There are plenty of Nullo-grav plates in the wrecked *Nomad*."

HE pictured it enthusiastically. A weightless platform, with flying girls to propel it, which would carry him in regal state wherever he wanted to go. He's still talking about compromise."

He explained to us then that Montoh, and perhaps most of the Gar people, were not in favor of a murderous war against the Aerites. But there was a clique of scientists here—and Charlon and others with the scientists, who were dominating the Gar ruler . . . And then Boyle told us something which explained Charlon fully.

"He's really Montoh's unacknowledged son," Boyle explained. "Charlon's mother was an Aerite woman, captured and

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"Fair enough," I agreed. "It's a bargain, Boyle. So you better make sure no harm comes to us."

"Don't worry about that," he declared. "If you don't make trouble, I'll get you out of here soon. You can have your freedom around these corridors and rooms in Mok. Montoh is planning to see you."

"Montoh? Who is Montoh?" demanded Evans.

"He's the Gar ruler. The king, you might call him. A middle-aged fellow."

"I thought Charlon was the leader," I said.

Boyle grinned slyly.

"He is, only old Montoh doesn't know it . . . Montoh is a weak old fool. He has no particular stomach for this war. brought here many years ago. She escaped later."

"What have you done with Ahla?" I demanded abruptly. "See that no harm comes to her, Boyle."

A queer look came over his face. He straightened, and his dark eyes flashed at me. For once, at least, Boyle looked like a man. "She was brought here because I ordered it," he said. "Not that it's any of your business, Frane,—but there's no chance any harm will come to her."

"I'm glad to hear it," I said. "Where is she?"

"Here in Mok." He waved his arm toward the door where the impassive Gar figures were still standing eyeing us. "Her apartments are just down this cor-

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ridor. I've made her serving maid to Tara. It's a nice job."

"And who is Tara?" Chick Evans demanded.

Boyle grinned. "You'll meet her, probably. She's quite some woman. She's Charlon's sweetheart. She'll be Queen of the Aerites some time."

Suddenly I had an idea. It struck me that Boyle through associating with the Gars, might know something of a problem which had been bothering me for days.

"Boyle, have you learned anything about the new air heaviness on Neptune?" I asked him. "Have you learned why the Aerites are losing their power to fly?"

"It's been very handy for the Gars," he retorted. He grinned with a foxy look. "You think I'm a fool, don't you, Frane? Well letme tell you, what you don't know about conditions on Neptune won't hurt you. Charlon, Tara and I have plans. Old Montoh's a stumbling block now, but he won't be for long."

"What do you mean?" I demanded.

"Nothing. Forget it. You live up to your bargain with me, Frane. You and Chick do what you're told."

He turned and swaggered to the door. He was evidently highly pleased with himself and with his interview with us. At the door he turned.

"I'll come see you again soon," he said. "Take a sleep—you look as if you needed it"

THEN the door closed after him and again we were alone once more.

Evans and I sat talking over what Boyle had told us and trying to make plans. All I could suggest was acting docile, pretending to cooperate with Boyle. Then if we could get our Nullograv belts and release Ahla, she might be able to tow us back to Aerita.

"Mighty lot of ifs," said Chick Evans gloomily.

At best, I had to agree, the thing looked just about impossible.

Food was brought to us by a grim silent Gar, who dropped it down in front of us and stalked out, barring the door after him . . . We ate in silence. There seemed nothing worthwhile saying.

Then for a time we stood at our single barred window, staring out at a little segment of this weird underground city of Mok.

It was a fantastic scene. From our window, sleek black rock-wall dropped sheerly down into darkness, a thousand feet or more. The wall of its opposite side, facing our window, was about a hundred feet away. Small openings, on different levels, were windows.

The seemingly bottomless canyon was a city street. Fluttering figures of Gars occasionally flew past. Landing ledges, like little balconies, and doorways in the cliffs could be seen. Also we could see figures sprawled on the ledges, women, and the small, naked figures of Gar children.

The whole scene was lighted by a dim red glow from far down. A hum of underground activity was wafted up from there.

"Nice place," Chick Evans murmured. "Without our grav belts, we wouldn't do much roaming around this city—even if they cast us loose. How would you get across just this one street? Quite a jump."

As Evans made this remark, a window across the ravine lighted up. This window was big enough to give us a sizeable view of the cave room behind it. We stared.

That room seemed to be of fantastic type of scientific laboratory. Apparatus of globes, discs and wires stood in a crescent. Facing it there were a dozen small metal couches; wires connected them in series.

Between them and the globes and discs two square metal chairs, high-backed, stood side by side.

A dangling mechanism of what looked like circular prisms hung over the chairs. There was something gruesome about those two high-backed chairs. Flexible metal straps dangled down. These straps had cables running along the floor, with branching wires up to the hanging prisms and running to each of the small couches.

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ALL the apparatus was dark, inert now. But there was about it somehow an aspect of deadly power—as though with current in it, that whole weird room would spring into ghastly activity.

"Great Jupiter," murmured Evans. "Looks like a torture chamber." Then a swaying shadow crossed it and a figure came into view. Both of us gasped. This was by all odds the strangest human we had yet seen on Neptune. He was a crooked little man, with dark flexible metal garments, a body not much bigger than a child, bent gnome-like legs, and with a huge head. He seemed to be aged, for the hair on his head was a stringy white, almost gone, with areas of pink-shining pate showing on his gigantic skull. A Gar?

The old man puttered around the apparatus. As he moved across the room we saw his back. The familiar membrane bat-wings of the Gars came to view. But his wings were small and shriveled, surely not powerful enough to enable him to fly.

At first we had only a dim sight of him; the dull saffron light in the room had kept him largely in shadow. Then as he bent down over part of the apparatus, a violet glow leaped out and strung itself like a rainbow over to the central, dangling prisms.

That glow showed us the weird little man much more clearly. Both Evans and I sucked in our breaths with astonishment. The old man's ears were huge, with grids apparently fastened on them. His face had a monstrosity of a long flexible nose with some mechanical device fastened there. Then, too, over his bulging eyes were clamped telescopic—or perhaps microscopic—lenses, grotesque inverted cones.

"One of the scientists that Boyle mentioned," I murmured.

The clank of the bars of our door made us turn. Two Gar men, huge, grey-black fellows, came in. Two others stood at the open door.

"Well, what is it?" Chick demanded.

Evidently they did not understand our language. They gripped us, started shoving us toward the door.

"Easy," I warned Chick Evans. "No use resisting. Maybe Montoh has sent to interview us. Boyle said he would."

We were shoved out of the cell and along the corridor. At intersections other Gars were standing guard.

Next a dark red brink opened before us, the canyon-like city street. Chick mumbled something. Then I found myself clinging to one of the stalwart Gars as, with an arm around me, he flapped across the red abyss. Another Gar carried Evans over also. As the pilot's captor dropped him into the corridor entrance side, Evans spoke to me.

"Say Alan, do you suppose they're taking us to that torture chamber?"

We did not have much time to theorize. In another minute we were shoved into the entrance of that very room. Both of us began to struggle but we did not have a chance.

The whole place now glared with multi-colored lights. Currents hissed and sputtered.

Chick Evans yelled protests. But nothing did us any good. I was shoved into one of those high-backed chairs. The struggling Chick was thrust into another one beside me. Metal bands clanked onto my ankles. My arms were strapped down, seemingly with electrodes. And then a helmet was pulled down over my forehead, a grisly thing which had wires coiling upward. Dangling prisms sent blinding rays of violet light above Chick Evans and me.

Into this scene now stepped Charlon. He moved out of the shadows and stood before us, grinning sardonically.

CHAPTER IX

Evil Queen of the Gars

WITH some men a wicked moment of triumph is the supreme thrill of their lives. And so it seemed to be with Charlon at this particular moment. His handsome face was distorted into a scowl and his white teeth gleamed with

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a diabolical smile.

"You flinch, Earth men," he sneered. "You are afraid and that pleases me. You do not know what is going to happen to you—yet. I am tempted to keep you in suspense."

"No need," I snarled back at him. "You're going to torture us. So the suspense part of the program is out. As to being scared—why sure, we're frightened. Who wouldn't be, with all this fiendish looking stuff around. I'm not ashamed to confess I'm scared."

Charlon burst into a laugh. His mirth was genuine.

"You guessed wrong, Earth man," he answered. "This time there will not be any torture, that is to say—deliberate torture. Perhaps that may come later, if you're stubborn. But at the present time we Gars are in search of information. We wish to learn the English language. Those helmets on your heads are devices to delve into your subconscious minds."

Then I became aware that the small gnome-like old man was advancing to my side. He made some adjustments with the controls and then walked over to Chick Evans and did likewise with his apparatus.

Then into the room filed at least two score of other gnome-like men, strangely like the first man in appearance. They sat down in easy chairs and adjusted helmets connected with ours by means of wires. Charlon walked out of the room.

After this began one of the strangest experiences of my career. These Gars had discovered the electrical transmission of knowledge. Sound records were also made simultaneously.

The first ordeal lasted for hours, until Chick Evans and I were exhausted and nearly fainting. And the following day the process was repeated, and the next and the next, for nearly a fortnight. As Charlon had said, the torture was conducted in an impersonal manner, yet it caused us excruciating suffering, nonetheless. Toward the end Chick Evans feared we would go mad.

But at last the scientists obtained all they wished to know and then we were left pretty much alone, again. The Gars even gave us some freedom. The doors of our cells were left open. Within certain limits we were allowed to roam up and down the corridors. But although I explored diligently I caught no glimpse of Ahla.

Rarely Boyle paid us a visit. But he did not get far with either Evans or myself. We made vague promises to Boyle, and nothing else.

Fifteen days after our capture Chick Evans and I had an interview with Montoh, King of the Gars. We were conducted into a lavishly draped grotto. Large phosphorescent worms, dangling on wires from the ceiling, furnished the light. There was also a crescent shaped window.

The Gar king sat on a throne of red crystal. He was an elderly man with a rather silly looking face. Charlon stood at his right hand.

Montoh asked us many questions regarding Earth and our customs there. Charlon exhibited little interest, not even deigning to speak. Just before the audience with King Montoh ended, however, an important incident occurred.

Through a door I caught a glimpse of Boyle conducting Ahla along a corridor. With a cry I sprang toward her and she turned. An instant later she was gliding into my outstretched arms.

"Alan," she cried. "Thanks to the Soul of Neptune, you are safe. I asked, but no one would give me any news."

With a muttered curse Boyle sprang after the girl and pulled her away from me. His expression showed both anger and jealousy.

"You let Ahla alone, Frane," growled Boyle. "I told you not to meddle with her. I'm taking care of her. Now go back and talk to Montoh."

FURY rushed over me and I stepped toward the traitor with clenched fists. But Boyle read my purpose and waved his hand. Four Gar soldiers appeared as if by magic and stepped in between us. They laid heavy hands upon me and held me firmly until Boyle

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had forced the struggling girl into a nearby room and closed the door behind him.

Then the guards took me back to the throne and watched me closely until the interview was finished. Apparently the king had not noticed this little flurry.

But someone else had—someone I did not notice until it was time to leave the royal chambers.

As Chick Evans and I neared the doorway a curtain in one of the alcoves moved and I caught a glimpse of a woman. She was clad in flowing red robes and was reclining upon a sumptuous couch. Sparkling jewels gleamed upon her arms, her throat and around her brow. Her hair was inky black, her lips the color of scarlet roses and her eyes dark and intense.

It was a handsome, proud, wilful face, lovely and fascinating. Yet for all its beauty, wicked and unscrupulous. I recognized her at once. She was Tara.

Just a glimpse as the curtains opened and then Evans and I were out in the corridor. But I never could forget the face of the beautiful Tara.

At the time I doubted that I ever should see her again. Yet in this I proved to be mistaken. For that night guards came to the cell Chick Evans and I had occupied since we had been living in the City of Mok and moved all my belongings out. Although they could speak broken English, they refused to explain the purpose of this. They merely indicated that hereafter Evans and I were to occupy different cells. Then they locked Evans in the cell and took me to another, several corridors distant.

This second stone room was much like the one I had left. It had a draped couch, several chairs, a metal table, wall brocades of red and black and a fabric rug on the floor. Then the guards walked out, barring the door behind them.

The room was dimly lighted from the red glow outside the window. This change of quarters puzzled me but I felt so weary I decided to put off worrying about it until morning. So I threw myself on the couch, and dropped off into slumber.

I did not sleep long.

A clank of bolt fastenings awakened me. With pounding heart I sat up. In the dim red glow of the window I could see the door stealthily opening. Instantly my thoughts reverted to Charlon. Was he coming here to murder me?

"You are Tara?" I said at last.

"Tara—yes. You have heard of me then?"

"Yes. I have."

"And you saw me, perhaps, when from you I was taking your language?"

"No."

HER voice was throaty, with a liquid contralto quality. "I saw you also in the throne room today," she said. "I listened when you talked to Montoh . . . Stand up, Alan Frane. Stand here beside me."

The way she ripped out the order was startling. A rasp to her voice, of a woman accustomed to be obeyed. I climbed to my feet. I was a head taller and suddenly realized how small she was.

"Yes," she said musingly. "You are tall and handsome. Are many Earthmen so powerful?"

I recalled how my fist had smashed into that Gar's face, cracking his skull like an egg. "Perhaps," I smiled.

"And no wings? That is unfortunate. It looks odd."

"We've found it awkward."

She had seated herself on the couch. I stood up before her. "I like you," she said abruptly. "That is strange—but it is true. I am wondering why, because you are so different from Neptunian men. And I could do much for you, here in Mok." I pretended not to comprehend her.

"I don't know quite what you mean," I replied.

"Do you not?" She straightened herself imperiously. "With Charlon I rule the Gars. Do you know that?"

"I have heard it."

"Old Montoh is nothing," she said scornfully. "I have shown Charlon the truth of that. The Gar people like old Montoh but he may have an accident and die."

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So that was it. I had thought as much.

"I see," I murmured.

"It may be I have told you about Montoh," she added, "perhaps I am telling you too much. If you should trick me, Alan Frane, it would be unfortunate for you."

"I know that," I said, trying to draw her out. "What you say is interesting. Tell me more."

"If Montoh should die, Charlon and I would rule the Gars. Then perhaps Charlon also would die suddenly. I do not care much for Charlon; he is too bossy."

"Ah, yes," I murmured. "Go on."

A FAINT smile curled her lips. "If I were a widowed queen I might want a handsome, powerful man for an adviser. The difficulty is all Earth men are cripples."

"Have you seen our Nullo-grav belts, Tara?"

Triumph leaped into her eyes.

"I was thinking of that," she said. "With wings I have heard you fly better than anyone on Neptune."

"Yes. With proper equipment."

"Now I am thinking of this girl Ahla," said Tara. "If I should send her back to Aerita, would you think it a good idea?"

"Indeed, yes," I said too eagerly. It was not clever of me, betraying such emotion when she mentioned Ahla.

Tara's eyes narrowed. "I see. I think I understand. I have talked with the little Ahla." She stood up. "I will go now."

I stopped her with a question.

"Tara, there is something that puzzles me. The Aerites are troubled by air-heaviness. Do you know anything about that?"

Her smile grew tantalizing. "If you and I should make plans together, Alan Frane, there is much I could tell you. But not now. I will see you again. Good night."

She went out, closed my door, but did not lock it. I waited until the sound of her gliding footsteps had died away before starting down the dim corridor in search of Chick Evans. There were quite a few things I could tell Evans. No Gar guard was visible in this section of the corridor. I unbarred Evans' door.

"Well, Alan, what's the idea?" Evans asked me.

"Lots to tell you. That woman, Tara, came to talk to me, Chick. We can make some plans now. I'm going to try and get her to—"

A murmur in the distance checked my words. Evans and I stood listening. Then we went out into the corridor. From further along came the sound of women's voices, raised and angry.

"That's Ahla talking," I told Evans. "Come on. Let's investigate this."

We crossed several corridors until we came to the door of a cell. The voices were those of Ahla and the Tara. They were speaking the Aerite language, but we knew Ahla was protesting and Tara was angry, accusing.

Through the open door, Evans and I could see the two women. Ahla seemed frightened. She had backed against the wall, with her wings drawn close behind her, while in front of her stood the enraged Tara.

The situation grew clear to me. Tara had become jealous of Ahla. Suddenly the Gar woman's spite turned to a murderous frenzy.

"Look, Alan," cried Evans, gripping my arm. "She means to kill Ahla."

One of Tara's hands came into view, holding a small, jeweled cone-weapon. As she turned on the current the cone hissed and a tiny red ring of fire popped into the air. It hung for a split-second, whirling and expanding. Then it lunged at Ahla!

CHAPTER X

Diabolical Machines

UTTERING cries of alarm, Chick Evans and I rushed into the room. The red electronic ring went over Ahla's head as the terrified Aerite girl dropped

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to the floor. Murder bent, Tara glided forward. Shoving the cone-weapon back into her belt, she drew forth a stiletto blade. It turned white hot. I leaped and caught her. My hand twisted the blade from her grasp.

But it was difficult to stop Tara. With a moan of fury she slid past me, trying to get at Ahla.

"Quit it," yelled Chick Evans. He managed to intercept her and hold her helpless.

For a while confusion reigned. The red ring of fire hissed and crackled against the rock-wall of the room. It fired a drape there which went up in flame, and fell to the floor. Ahla was screaming. Outside in the corridor I heard shouts and oncoming footsteps. There would be plenty of Gars here within a moment.

Tara broke free from Chick Evans and staggered back. In her anger her bat-wings grew stiff, outstretched behind her. Her face was contorted with passion. Again she reached for her belt.

I leaped at Chick Evans.

"You coward," I shouted. "How dare you interfere with Tara."

A blow from my fist knocked Chick Evans backward. He gasped and fell. I followed him up, pummeling him. Poor little Chick. He did not have a chance against me. For an instant he tried to protest and fend me off.

I hit him again, a nasty clip. He gasped, cursed, and fought back at me. There was an instant, as we clinched, when I was able to hiss at him: "Got to do this!"

My blows were real enough, Heaven knows. Then Chick clipped me a hefty one as Gars came crowding in from the corridor. They would have rushed me, but Tara checked them. Certainly it pleased her to see me beat up Chick Evans. And I did a good job of it, reviling and cursing him, for it was the only way to save his life. Twice I knocked him down. Then he had the good sense to stay down, so that I did not have to follow it up. Next I turned on Ahla.

"Vile Aerite girl, you caused this," I shouted. "You have fooled too much with Chick, with me, with all us Earthmen."

"Enough," said Tara.

Panting, I let my appearance of frenzy quiet down. "All right, I am sorry," I muttered.

"What goes on here?" came Charlon's voice.

I swung around. Charlon and Boyle had entered the cell. Then Boyle did the best thing for my plans he could have done. He jumped for Ahla. "What happened, Ahla dear?"

"The Earthmen fight?" Charlon said.

"The little one seized me," said Tara in sweet tones. "So Alan Frane punished him."

Charlon stared. Boyle had left Ahla and was bending over Chick. Poor Evans. His face was swelling, and bleeding from my blows.

"Why were you here with Ahla?" Charlon demanded suspiciously of Tara. "What caused the trouble?"

CHICK EVANS had the good sense to keep silent. So did Ahla. Tara answered Charlon.

"Do not bother about it, Charlon. We must think of more important things." She was standing beside him. Her jeweled hand reached out with a snake-like gesture and caressed his hair. "Send the Earthmen away, Charlon. They bore me."

The Gar guards had seized Chick Evans and me. They bound Evans and hustled him away. It occurred to me then maybe I had carried the thing too far. Tara murmured dripping sweetness to Charlon. She contrived it so he was leveling black, murderous looks at Evans as he ordered the guards to lock him up. I then realized whatever I planned, must be done in a hurry.

Certainly Chick Evans must not be murdered.

I could also see something of importance was going on here in Mok during this time of sleep. Charlon and Boyle had been together. Doing what? I could not guess. But at any rate, they

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went back to it now; and as my guards led me away, back to my room-cell, I could see the dark, sinuous figure of Tara lurking in the corridor shadows. When the guards had left, again she slid open my door and came in.

What I had hoped for happened now. She came in and stood before me, triumphant. She felt positive her woman's lure had conquered me. She was convinced of that at last.

"Tara," I said, "you will have to make the plans for us. I know so little of what is going on here."

"I can show you some of it," she said. "That is what you tried to ask of me before, is it not, Alan Frane?"

"Yes," I agreed.

"Come. I will show you."

She planned it out loud as I listened. Charlon and Boyle were busy up near the surface of the city. She would get a cloak disguise and take me down to a laboratory workshop. There was something there for me to see.

"Tara, will you get my Nullo-grav belt for me?" I held my breath waiting for her answer. "Do not keep me an Earth-cripple, Tara."

"I will get it," she said.

She left the cell. For a full hour I sat tense, waiting. It seemed an eternity. Almost I had given up hope when she came gliding in.

"Here is the belt, Alan. My Earth man, no longer shall you be a cripple. But you must be careful never to use it until our plans are fulfilled."

"Of course," I assured her.

I put on the belt. She had brought a long black fabric-cloak. I drew it over me.

"If you always wear the cloak no one will notice the belt," Tara murmured. "Charlon always has a black cloak like that."

I nodded. "All right. I'll wear it that way."

WE STOLE into the main city corridors. Occasionally a Gar saw us, but no one challenged us. Then we descended a steep incline near a red pit. I saw then what caused the red glare which lighted most of the weird city of Mok. Below us burned gas-flames from the inner fires of Neptune which, here at Mok, had in many places broken through these subterranean caverns.

"This is the grotto-laboratory workshop," Tara murmured.

We walked through an oval doorway into a big grotto. Greenish light glowed. Around us stood queer apparatus. The place was not in use for most of the machines were dark and quiescent, except one affair of coiled wires which wobbled drunkenly as electrons sizzled and crackled through it.

Before it sat three big-headed, goggling scientists. Tara led me forward, her hand pressing my arm with a warning to keep my head hidden beneath the cloak collar. She spoke to the scientists in her own language and dismissed them. Getting up they hobbled out of the place.

"This is what I want to show you, Alan," said Tara. "It will win victory over the Aerites. You will see."

My attention centered on the walls of the laboratory grotto. They glowed. That glow somehow seemed familiar. Next I noticed familiar looking streaks in the rock.

Uradonite!

The precious metal which our Earth lacked so badly, the treasure which had brought us here to Neptune. The walls of this grotto were packed with Uradonite deposits. Also from this mechanism before us wires ran to the wall, to a line of electrodes there.

What was being done with it here?

"Tara," I murmured. "What is that?"

Tara's smile grew ironic. "The poor Aerites have wondered about their air-heaviness. This causes it."

Then the new air-heaviness was not a natural phenomenum of Neptune. A diabolic scientific device of the Gars was to blame.

I carefully answered Tara's smile. "How clever," I said. "So you are causing it, with this device here? How does it work, Tara? That's what we call Uradonite. Let me go look at it, and those electrodes over there."

I prowled around, while she proudly

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explained it to me. A huge deposit of Uradonite streaked the rocks. Erosion had let moisture into it, increasing its radioactivity. The Gar machines reversed the poles of magnetic force and sent a spreading ray diagonally outward into open air. When a flying human body encountered that force, the body was supercharged and drawn downward. A charge of grav-force discharged when the flyers' feet touched the ground. Hence those weird sparks we had noticed in Aerita.

"We Gars have shielded it off so that its effect was only in the direction of Aerita," explained Tara. "That is why we are not troubled by the magnetic ray. We wear specially insulated clothing."

"And this mechanism here, does that?"

"Yes. For the Aerites air heaviness will steadily get worse. Soon they will not be able to fly at all."

CAREFULLY I studied this villainous mechanism of the Gars. I saw the insulation-shields which directed the rays specifically against the Aerites. Then Tara showed me how the device could be turned on and off.

"See here," Tara said. "Here is the image-grid so our operators can see the surface-world around Aerita."

The hooded finder into which I stared, like a televisor, showed now a dark spread of the wild Neptunian terrain. I shifted it, sweeping its scope of vision to other areas.

Then with Tara watching me, I bent over the main mechanism, studying it. It was very ironic. Here the presence of Uradonite caused the Aerites to lose the use of their wings. On Earth the lack of Uradonite was causing much the same trouble.

I soon understood these mechanisms. Uradonite, the working of it, with it, with Earth-mechanisms, all that was familiar to me.

Then Tara's murmured words brought a new shock to me. "We must make our plans now, Alan. I will want you to lead our conquering army, you, and I. We will fly with the army. It is now almost ready."

"Almost ready?" I gasped. "Why, old Montoh gave me to understand you would not be ready to conquer Aerita for many months."

"In what you call a few hours we will be ready," insisted Tara. "Charlon and Boyle are up at the surface finishing final preparations."

So that was why it was so quiet down here, and in the lower city corridors. Everyone was out on the surface, with the Gars' aerial army. I sat tense. Despite my former plans, I would have to act at once. Should I smash this mechanism? Could I do it without Tara knowing what I had done? . . . And if I could, then what? Get away from the murderous Tara, release Chick and Ahla. Then the three of us could try and warn Aerita the Gars were coming. . . .

With my mind filled with these vague plans—suddenly I made a new discovery!

It was an amazing accident. I stared down at the Uradonite-mechanisms with which my fingers had been toying. Then I stared into the device by which an imaged outer view of the landscape could be seen. For a long minute I watched a segment of dark Neptunian wildness.

AGAIN I experimented with the mechanism.

"What is it you are doing?" Tara murmured.

"Just trying to understand the cleverness here," I said. "Back on Earth, you know, I am a scientist. . . . Yes, it is a very clever mechanism. With this, the Aerites will be almost kept from flying at all. We shall beat them easily, Tara."

"Yes, of course we shall."

My fingers were making adjustments. I tried a little experiment, with a tiny section of the current. By the vision mirror I had proved my own invention, adapted to use here, would work. It would be something the Gars did not know. How could they? I had just found it out myself.

To smash this apparatus now would be needless. This new plan of mine was much better!

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CHAPTER XI

Treachery Redeemed

ONCE again I must go back to explain what was happening to Chick Evans at this same time. As he told me later, although he knew that I had beaten him up for some good purpose, naturally he was not very pleased with me. "It better be a doggone good reason," he told himself bitterly. "It sure better had."

The Gars had bound him, carried him back and slammed him into his cave-room, barring the door after them. Chick Evans lay on the floor. The rope with which he was tied held him into an inert bundle. He could not get on to the couch. Also he was bruised—his face swollen and bleeding. For a long time he lay there, wondering what was going to happen to him next. He had seen those darkly murderous looks from Charlon. . . .

Then his door opened, a figure slipped in, and slid the door closed.

"Who's that?" Chick demanded. "I can see you. Who is it?"

"Take it easy. I didn't come to hurt you, Chick." It was Boyle's voice. He moved forward out of the shadow, into a ruddy shaft of light from the window.

"Boyle," said Evans contemptuously. "Well, get out of here. I don't want to talk to you. What's the idea anyway?"

"You'd better be willing to talk to me," retorted Boyle. "I've come to let you escape."

"Me?"

"Yes—you." Boyle was bending down, unwrapping the ropes with which Chick was lashed. "I don't want you murdered."

"Who's going to murder me?" With the ropes loosened, Evans staggered to his feet. Then he sat down on the couch, rubbing his stiffened legs.

"Charlon," Boyle said. "Or Tara." Again there was that queer defensive, half-sullen look from Boyle. Chick Evans could not miss it. "No, I don't want you to be murdered."

Boyle was wearing a long dark cloak. He reached under it now, produced a Nullo-grav belt, a little Mansfield motor, and a folded pair of artificial wings!

Chick Evans stared at them. "A Mansfield? And wings? Where'd you get them?"

"Mine. The scientists here repaired them. You take them, Chick. I want you to go back to Aerita."

"You're a strange fellow, Boyle."

"Am I? I don't think so. You can't interfere with my plans, whether you go back to Aerita or not. So you might as well save your own life."

"What about Alan?"

"I'll release him. I'm getting another pair of wings fixed."

Chick Evans figured the idea of releasing me was a lie. Evans had no concrete plan of action. But he let Boyle buckle the Nullo-grav belt on him, the Mansfield and the wings.

Evans thought perhaps he might slip away from Boyle and get in touch with me. If so this equipment would be just that much to the good for us. But Boyle guessed his intentions.

"You're going to save yourself, whether you like it or not," said Boyle abruptly. Pulling out a cone-weapon he leveled it at Chick. "Come on now, get going. Here's another cloak. Put it over you."

SEEMINGLY Boyle was determined to force Chick Evans into what Boyle hoped would be safety, whether Evans liked it or not.

"Where are we going?" Evans demanded as he pulled the cloak over him.

Boyle told him. There was a corridor branch near which led to an outer exit, a place where Evans could take wing. Boyle knew the route back to Aerita. He told Evans the main landmarks . . . "You can't miss it," said Boyle. They had left Evans' cell. Two furtive cloaked figures, they glided along branches of the corridor. "You'll have no trouble getting to Aerita with that Mansfield for power."

They came to what seemed an inner ledge, a rocky pathway along a subter-

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ranean cliff, one of the city highways. At the moment it was deserted.

"Watch yourself, Boyle," cautioned Evans. "Falling off here wouldn't be so nice. Remember, you aren't wearing a Nullo-grav belt."

To the right of them the ragged, rocky cliff rose up sheer; to the left, yawned that scarlet abyss. A few distant figures, like giant bats, fluttered around in the red glow.

"Almost everyone is up on the outer surface, explained Boyle. "I'm lettting you out what you'd call a side exit. Your movements will be hidden by a mountain peak."

"And why is everyone else where they are?" demanded Evans.

"The Gars are going to invade Aerita."

"Invasion now?" For the first time Evans heard of that. He gripped Boyle, staring at him.

"In a few hours. Yes. Back there you'll have as much chance for your life as any other Aerite. But if you stay here you'll be murdered sure. You see? It's the best I can do, Chick."

What Chick Evans might have tried to plan, or tried now to do under these new circumstances he never had a chance to discover. He became aware of a faint glow around them. It was not the lurid red from the pit beside them but consisted of violet and pink rays.

"What is that light, Boyle?" he asked Boyle.

As Evans spoke he realized the glow had been on them for several minutes, following them as they moved along. Boyle had not noticed it, but he saw it now. He stood and stared at his companion. Then his face turned pale.

"That's a Gar eavesdropper," he whispered. "Somebody around here has put a ray on us and is listening to what we say."

As he spoke, the pink light vanished. Then from behind a cluster of rocks, near at hand, a man, with bat-wings, rose up.

"Boyle, where are you going with the little Earth man prisoner?"

"Charlon!" Boyle gasped.

Chick Evans was unarmed. Boyle had put away his cone-shaped weapon. Now he had no chance to draw it.

LIKE a great angry bird Charlon pounced upon them. The brief scuffle which ensued on the red brink became a fragmentary blur to Evans. He jumped sidewise as Charlon swooped at Boyle.

Evans had no chance to help Boyle after that. Locked in each other's grip the two antagonists, the winged Gar from Neptune and the man from the distant Earth, reeled heedlessly to the brink of the great red abyss. Here they struggled desperately.

"Watch it, Boyle," shouted Evans. "Don't let him toss you over."

The Gar had gripped Boyle around the middle. But his other hand remained free. This he wrenched upward and for the first time Evans saw that he was armed with a red hot knife. Before Evans could shout the weapon plunged in and Boyle gave an involuntary cry and flinched. He stepped backward and went over the brink of the chasm.

Evans thought it was all over then. But Boyle was still holding tight to Charlon and he pulled the bat-man with him. The two of them fell out of sight, Charlon flapping his wings madly.

Yet in the air the Gar's knife struck again and this time Boyle let go his hold. His body went down into the hole like a plummet, while Charlon, with another wild cry—this time of fear—went flapping away in the direction of the mountain peak. He landed in the street of the city and once there began to yell at the top of his voice, giving the alarm.

But Chick Evans was not watching him now. Flat upon the ledge he was lying staring down at the spot where Boyle's body had landed. The injured man lay upon another ledge, about two hundred yards below. At first Evans thought he was dead. Then he saw the figure move, trying to crawl.

Now Chick Evans remembered he was wearing a Nullo-grav belt and Mansfield-powered wings. He clicked on the current and took flight. Like a giant bird he fluttered down and landed beside Boyle.

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"How goes it, old fellow?" he said. "Are you much hurt?"

Boyle gave a hollow groan.

"I'm done for, finished," he gasped. "Quick. Escape while you can."

But that was no Chick Evans way, to leave a comrade in distress.

"Let me pick you up and carry you to Aerita," he suggested. "They can doctor you there."

"No," answered Boyle with a grimace. "It would be too painful. I couldn't stand the trip. Perhaps I'll feel better if I lie here for a time. But you mustn't wait Chick. Escape while you still have a chance."

But still Chick Evans would not hear of that. Despite the injured man's protests, he dragged him off the ledge and hid him in a nearby opening. He managed to do this not a moment too soon, for Charlon had given the alarm and the Gars were flying toward them at top speed.

They heard the winged men calling to each other as they spread out to hunt, and the shrill tones of Charlon as he urged them on. There seemed to be about forty of them in the party. For a time they seemed to be puzzled by the disappearance of the fugitives. Their efforts became more systematic.

Nearby a stone rolled and Chick Evans peered out around the angle of a rock and saw two dim figures approaching. At the same time also they caught sight of him. One of the winged forms fluttered aside but the larger one gave a tremendous jump toward Evans.

His fist lashed out at Chick Evans' face.

CHAPTER XII

Plans to Escape

AT THIS time, with Tara beside me, down in the silent laboratory of the Gars, I bent over the Uradonite device, still wondering if this mechanism would work the way I planned. Certainly it seemed so. Then I sat back.

"Yes, it is a clever contrivance," I told Tara. I squeezed her hand affectionately. "Tell me all your plans, Tara."

She cast aside all restraint. "Yes, I will reveal them to you now, Alan Frane. After we have conquered Aerita we must kill Charlon and the little Earth man, Chick Evans."

"Wretched little coward," I commented. "I used to like him, Tara, but that is all changed now."

After she had explained her plans to me—and they were diabolical ones, too—we decided to leave the underground laboratory. Again we passed through the corridors without interference from the Gars and halted at the door of my cell.

There I stopped her for a last word.

"You say Boyle has equipped two of the Mansfield motors with wings, dear?" I inquired.

"Yes," she answered. " I shall order servants to bring them to you at once."

"Be sure they are ones you can trust," I cautioned her. "Now, goodnight, darling."

Then I made a bluff at entering my cell as she glided away. As her footsteps died away, I peered out, made certain she had departed and then hurried down the tunnel in the direction of Ahla's apartment, the one where Tara had tried to kill her with the cone weapon.

It was not far away, just around an angle of the rocks. As I neared the doorway, a Gar guard stepped out of a niche and challenged me. It proved to be the most unfortunate action he ever was destined to make.

As he spoke I hit him with all my might. The bony framework of Neptunian men is slighter than ours on Earth and again I cracked a skull. He went down like a loose bag. Then I jumped forward and began to pound on Ahla's door.

Her door opened. She smiled as she saw me and motioned for me to enter. As the door closed behind us I took her in my arms.

"I killed the guard out there, Ahla, so it's now or never," I said to her. "We must find Chick and get out of here. Did

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you know the Gar army is almost ready to attack Aerita."

The glimpse of the Nullo-grav belt brought an expression of hope to her eyes. "Oh, Alan, how fortunate. That belt means I can tow you to Aerita through the air."

I gripped her by the shoulders. "I'm not going to Aerita," I said. "Ahla, don't try to question me. We haven't time to argue. You must do as I tell you. Understand?"

"Yes, Alan."

"I'm going to give my belt to Chick. I won't need one here. You must take Chick back to Aerita. Then warn the Aerites so they can oppose the Gars. Just remember one thing, though, when you tell all this to Arton, back in Aerita. He must be sure to fight the Gars over the metal mountains, between here and Aerita. Try and lure the Gar army out over the Black Lake. Can you remember that, Ahla? Metal Mountains and Black Lake?"

TOO startled to speak, the girl would only stare at me with astonished eyes.

Then she shook her head in an emphatic negative.

"I refuse to do it," she said. "Alan, you must be losing your mind."

I laughed grimly.

"No danger of that. Perhaps I'm just getting it to working right. Anyway, I'll explain it all to Chick. He'll want to be the one who stays here. That's his style. But, as a matter of fact, I don't think staying here is any more dangerous than going. The Aerites are going to win that battle, Ahla!"

That perhaps surprised her more than anything else I had said.

"The Aerites can win?"

"Yes, of course they can win. And when they do, you'll find me here—safely hidden. . . . Come on now, let's get to Chick."

Back in the corridor, we passed the fallen Gar I had killed and prowled to the angle. Every moment I expected that we would be discovered. Such an alarm we could not prevent and it would have about wrecked everything for us. But none came. We reached Chick Evans' door. It was fastened on the outside so I slipped down the bars, and slid open the door.

"Chick, Chick, it's Alan!" I called out.

But Evans did not answer. Then the red glow through the barred window disclosed that Chick Evans was not here. The ropes which had bound him lay in one corner of the room. My heart sank. Had he been taken out, to be killed?

In that instant it seemed all my hopes had met disaster. Certainly I had made no provision for this. It had never occured to me that Chick Evans would not be there. With Alha beside me, I stood frowning gloomily at the ropes.

"Gone," I murmured. "Well, that seems to be that."

Ahla suddenly clutched at me. "Listen. Something is happening outside."

Coming in from the canyon street—I heard the distant sound of Gars shouting.

"We must go," murmured Ahla. "We'll be caught if we stay here."

True enough. "Do you know the shortest way to the outer surface, Ahla?"

"Yes. I think so."

"Well, come on. Let's get started."

She would have to return to Aerita alone. . . . We ran from Chick Evans' room, and down the corridor. At a crossing, a group of Gars came fluttering, half-running, half-flying. All of them chattered excitedly. Ahla and I ducked into a recess of the ragged rock-wall, and they went past. Then Ahla had led me downward to another level, a rock ledge on the edge of an abyss. We crouched as more Gars fluttered by.

"That sounds like Charlon's voice," Ahla murmured. "He seems excited."

So many things could have occurred. Wild conjectures flooded me. Had Tara already tried to kill Charlon? And perhaps made a mess of it? Perhaps he had killed her? I knew he suspected her of treachery. . . . Also, what had happened to Chick Evans? So much that I

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didn't know—and all my plans hanging upon these answers. . . .

The alarm, whatever it was, seemed to be dying away into the distance. "Well, perhaps that's the end of it, Ahla," I said. "I wish I knew whether to start you for Aerita now, or to wait for a while."

WORDS died in my throat. My foot had sent a rock rolling along the ledge. Something moved in the shadows near us. Then a figure rose up—a winged man's figure—wings that stood stiffly out sidewise as he prepared to leap at me. Shoving to one side, I jumped closer. My fist drove forward. . . . Into a Gar's face to smash it like an egg? But this figure nimbly ducked and I collided with a solid, wiry body. Arms went around me. And then I was recognized.

"Alan! Are you trying to beat me up again?" said Chick Evans.

It was Chick, all right, with Nullo-belt, Mansfield and fabric wings. On the ground, here in the shadows, the figure of the wounded Boyle lay huddled, with smashed legs. His contorted, pain-racked face stared up at Ahla. To me he offered a twisted, rueful smile.

CHAPTER XIII

A Martyr to Duty

IN SPITE of his desperate injuries, William Boyle was lying there on the ground arguing with us. A strange contradiction of character, this man had turned out to be. At one moment a traitor; the next a hero. For he insisted he was the one, by logical choice, who ought to remain in the mountain city of Mok. He firmly insisted on this when I revealed my plans.

"It's the best chance I'll ever have to redeem my treachery," Boyle said. "Furthermore, I couldn't escape, even if I wished. There's no help for it. I'm the one for the job."

Chick Evans and I gazed at one another. Dared I trust Boyle again? Chick Evans read my thoughts and nodded.

"I'd stake my life on his loyalty, Alan," he said.

"It's my opportunity," pleaded Boyle. "So far I've made a mess of things."

I had my Nullo-grav belt and Chick had both belt and wings. With Ahla helping us, once we left, we might be able to get back to Aerita.

"At the present time there are three, or possibly four, of the Gar scientists down in the laboratory," I told my companions.

"For you and me to tackle, now," said Evans. "We'll get rid of them at once."

"Carry me down there," pleaded Boyle. "I'll do my part when the time comes. I promise it."

"Oh, he will—he will," insisted Ahla, warmly. Her eyes glowed like stars.

"Correct, we'll do it that way," I decided.

"And we better start at once, too," suggested Evans. "Charlon's after Boyle and me and those Gars may come along here any minute."

Also Tara might conceivably have gone back to my room and found me gone. . . . It was as though we were all on a powder barrel, with sparks sizzling and threatening to explode at any moment.

"Come on, Chick," I murmured. "Ahla, you stay here with Boyle. We'll be back when we've cleaned up the laboratory—"

We moved swiftly. Like shadows we hurried through corridors, down to the subterranean grotto where the Uradonite deposits glowed. Once more the Gar ray-projectors met my gaze.

"Easy now," I whispered to Evans. "Let's be sure what we're up against."

We crouched down on a ledge-balcony of rock about thirty feet from the floor. Below us the glowing laboratory was spread out beneath us. Most of the silent room was dark but we could make out the outlines of the groups of apparatus. There were a dozen units—huge, cubical skeleton structures, some ten feet cube—glistening, pallid skeleton-frames

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strung with wires on which the little vacuums hung like pods.

In effect, I knew these were transformers; augmentators, we would have called them in an Earth-lab. The cables connecting them one with the other lay like huge pythons on the floor.

Augmentators, by which the central power-rays were built up, stepped up in ohmeric pressure and voltage-intensity, to be discharged through a series of big interlocking projector grids. We could see the main grid over in one corner, pointing diagonally upward toward the grotto wall and rocky roof.

Grav-rays, which like many such rays known to Earth-science, penetrated the rock-masses here as though they were non-existent. Grav-rays, the intensity of which—and the direction of which—could be controlled at the will of the operator here.

And this was what had so harassed the flying Aerites for many months now. This was what, in any aerial battle, the Gars were sure would bring defeat to their enemy. . . . The central "brains" —the electronic nerve-center of it all,· was that smaller mechanism in the center of the room. All the wires converged outward from it. This was where so brief a time ago I had sat with Tara, this was the mechanism with which I had experimented, making adjustments, changes of operation. These mechanisms recalled to my mind the discovery I had stumbled upon . . .

A GLOW and faint hissing of current from that central device attracted my attention. The grav-rays were radiating toward Aerita, as they had been doing for months. From where Chick and I crouched on the side ledge, we could see the wizened figures of three of the scientists. They sat there in a little group, murmuring together.

Chick Evans put his mouth almost to my ear.

"Not a sound now," he whispered. "Ears like microphones, telescopic eyes."

I nodded. "Nobody else here," I whispered.

"No. Guess not."

"Ready now." I pressed my arm. "Good luck to us. When you drop, drop hard and with good aim. Then we'll smash them."

A flick of our hands sent current into our Nullo-grav belts. Weightless, we poised, and jumped, sailing out like huge floating feathers into the center of the room. As momentum carried us from the wall, I signaled to Evans. Together we cut off the currents from our belts and dropped downward.

With a scuffle the gnome-like scientists tried to jump away. Then we landed upon them. The drop proved to be more violent than Evans and I had figured and it all but knocked the breath from us. One of the little men was crushed under us. Another tried to dash away, but I caught him and smashed his bloated head with a single blow. A third yanked out a cone-weapon and sent a crackling voilet puff at my companion. Fortunately the ray went and sizzled harmlessly against the wall.

The remaining scientist took refuge behind a nearby skeleton-frame. In another ten seconds I have no doubt he would have produced a dozen deadly vibrations.

Desperately I plunged for him. And Chick Evans had the same idea. We both struck him at once. A pink haze of light seemed to be enveloping him. We sailed toward him. We went through that haze and his grotesque little body quit struggling under the impact of our weight and flailing fists.

The pink fire vanished. Our clothes had been charred, our hands and face blackened a bit, but that was all.

"Alan, look at him," gasped Evans.

The scientist was burning up, consumed by the pink flames of the supercharge he had used.

For a while Chick Evans and I crouched, hiding and waiting. Had the commotion we had made been heard up in the city grottos? Would the Gars come to investigate?

But nothing happened. For a time, the burning super-charger painted the

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laboratory with a flickering pink sheen. Then the flames burned out.

"All right, Chick," I murmured at last. "We'd better hide the bodies." We dragged the dead scientists away and concealed them.

After this we lost no time in hurrying upward along the corridors to the place where we had left Ahla and Boyle. We found they were still there, safe and undisturbed. The girl was crouching over the wounded man, holding his head in her lap, with her wings spread out behind her.

"Everything is all clear," I told them. "How goes it, Boyle? Not in too much pain?"

Of course he suffered horrible pain but he refused to admit it.

"Try to be careful when you carry him," murmured Ahla. "I'm afraid movement will make him worse."

"Just get me down there, that's all I ask," gasped Boyle. "I'll do my part—see if I don't."

Chick Evans and I tried to carry him carefully. At last we reached the dim lower grotto. The quiet laboratory showed few signs of what had transpired there. The small central mechanism glowed, but all the units stood like inert ghosts in the gloom.

WE LET down the adjustable control seat and stretched Boyle out in it. I shifted the little periscope gadget so he could watch the outer landscape of Neptune as he operated the other machine before him. The image now showed that familiar sweep of ragged, precipitous mountains, by the shore of the Black Lake. Ahla recognized the spot, a point midway between Mok and the city of Aerita. We experimented, showing Boyle now how he could scan all that distant terrain and the air above it.

"Yes," he murmured. "I understand."

"Are you sure?" I insisted. "From here you must observe the progress of the battle. We'll lure the Gars to the shore of the Black Lake. Understand?"

"Yes, I understand," murmured Boyle.

"When we have them there no Aerites will be near them, none within range. Then you know what to do?"

"It will be my big chance," he agreed. "Don't you worry, I'll take it."

There was no doubt but that he understood me. "We must leave you now," I said. "But when it's over we'll come back here, Boyle. It will only be a few hours."

"I'll be here," gasped the injured man. Again he gave me a twisted smile trying to hide the physical pain which tortured him. That was a brave smile.

Before we left I took a final glance around. The shadows concealed him as he sat there in the control seat of the mechanism. From the entrance of the laboratory a casual glance revealed nothing wrong with the place.

As we made our way upward to the surface levels, again I noticed how deserted the subterranean canyon streets of Mok had become. It was lucky Ahla was with us. Otherwise we might have lost our way. But she seemed to have a good sense of direction and to know her way about this strange place.

We emerged into a narrow lane, a mere slash in this underground honeycomb. Then we took off, into the murky air. Ahla and Chick were equipped with wings but I had none, so they were forced to drag my weightless body behind them. Thus we fluttered upward from the street. As we passed various levels we saw ledge-balconies. Occasionally we observed figures sprawling there. Almost all of them proved to be little Gar-children.

Soon we emerged into the open. About one thousand feet from the top the region of habitations ended. Still towed by Evans and Ahla I was drawn upward. There was no alarm as we emerged. No one seemed to notice our three flying figures, winging off into the pale darkness of the Neptunian night.

The reason was obvious. High above us I could see the roof of the city of Mok, a broad upper plateau surface, ringed with needle-spires. Further on, thousands of dark figures fluttered as they assembled into an army.

Satanic scene . . . As though here

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were Hell, red-splotched.

Bat-winged creatures churned there in turmoil, limned by the red glow from the abyss. Groups of Gars beat the air and then settled down. On every precipitous pinnacle bird-like figures had clustered. Their voices made a blended blur of sound. From a red street a group of figures appeared struggling up with a huge apparatus. Others came up with sections of some mechanism to be assembled at some suitable place.

Chick Evans called at me.

"They look pretty well organized up there," he yelled. "We better hurry."

With Ahla and Chick Evans towing me, we slid away over the dark, serrated ranks of the Neptunian mountains, heading back for Aerita. Indeed there seemed need for haste!

CHAPTER XIV

Battle in the Air

IN PREPARATION for the battle, the inhabitants of the shining city of Aerita buzzed with confusion as the Aerite army hastily assembled. All were eager to fly out and oppose the oncoming Gars. The news we had brought that unless the Aerites could check them, the murderous Gars would arrive within a few hours, had thrown old Arton into a panic. He had done nothing toward reconditioning the electronic weapons which for so long had lain idle in vaults beneath the city.

And now it was too late. It seemed Arton never really thought the Gars would attack. Somehow he believed by ignoring war, war could be avoided. Queer how history of Earth coincides with events here.

A pitifully small, ill-equipped aerial army was thrown together for battle. Already we had had news the Gars were coming. Aerite scouts whom I had sent out, returned to say they had seen dark lines of Gars, circling over the distant mountain passes, or streaming down above the serrated terraces of the high mountains. The enemy collected in groups of one hundred each. They numbered about five thousand in all.

This sounded like bad news. Chick Evans and I gazed at each other in dismay.

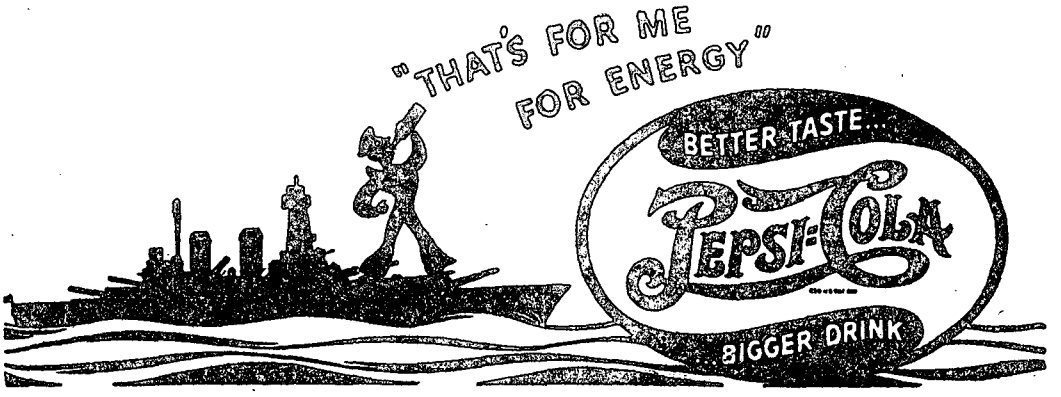
"Quite a lot of them," Chick Evans commented. "Five thousand. We'll be badly outnumbered."

"They have weapons of science also," one of our scouts said. "We could see big platforms in the air, with hundreds of Gars flying around them."

"But that isn't exactly the worst of it," I declared. "They're coming through the mountain passes. It will be difficult, Chick, for us to lure them too great a distance."

Luring them over Black Lake was our job. Of course Evans and I had no time to explain our plans to all the Aerite flyers. They only knew they would take orders from us and from Ahla, orders which must be quickly, implicitly obeyed.

[*Turn page*]



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At last, after desperate haste, we were ready. I had been able to equip myself with other wings, powered by another Mansfield which we had previously brought from the wrecked *Nomad.* Evans had his wings and motor, and we both wore Nullo-grav belts.

Those Aerites, with this wholly unexpected crisis falling upon them in the middle of the time of sleep, certainly were not lacking in courage. I could have mustered thousands more of them, men and girls, and even half grown children if I had wished. But this would have been just an untrained, wholly unequipped flying mob, however eager and courageous. I decided against it. They would have been fluttering to their death against the deadly weapons of the Gars.

I selected about six hundred strong-flying young men, and a few young girls whom Ahla knew were exceedingly agile in the air. They were equipped with such small weapons as we were able to procure.

When they were ready, I circled them for a moment over the shining rooftop garden of Aerita. Looking down I could see the garden jammed with people, silently staring up at us. They were grim, those people who had to stay here and wait. A few of them flapped their wings and waved their arms.

Then with the little army strung out behind me, we headed out over the wild terrain. Naked canyons and cliffs and rock-spires lay under us and above, the lurid Neptunian sky, with great wheeling clouds bathing us in the green glow of night.

Chick Evans, flying nearby, called: "Is this about right, Alan? Shall we land here?"

"Yes," I agreed. I spoke to Ahla. "Land now. Tell them." I said.

WE HAD passed over the top of a huge rocky spire, with ragged cliffsides. To the right the tumbled terrain rose in tiers, dotted with spires like this one, and gashed with ravines and canyons. To the left, far away in the dull-green distance, the dark surface of the Black Lake lay dimly visible.

Ahla gave the command in her native language. A dozen of her appointed lieutenants relayed it. Like a flock of frightened birds six hundred of us scattered, circled the spire, and then fluttered down, landing at six hundred different places. For an instant I could see the scurrying figures on the jagged cliff face. Then they were hidden.

We had not yet sighted the Gar columns. But from information received, they should be almost in this region now. They were not coming by direct, swift flight. Our scouts had noticed that swift-flying groups had been held back by the slow progress of the mechanism platforms—the heavy apparatus which at intervals of a few miles would be landed, while the Gars carrying them rested.

Chick Evans and Ahla were beside me now where we crouched, part way up the cliff face of the spire. Again I noticed how pitifully few were our weapons. Every Aerite, both the men and the girls, had only small electric knives. In a close-range scuffle, at grips with an opponent they might be handy but of no use in long-range aerial combat.

We had an electric device by which a sharp disc could be flung—rapidly rotating—with a considerable accuracy for a thousand feet or more. These charged floaters would be attracted in their course by any nearby human body.

Except for flexible fabric-shields of insulated material supposedly capable of warding off any hostile rays these things comprized our weapons. Old Arton had felt proud of these devices. Defense. His mind always had run on that. For me, I always think in different terms. The man who puts all his energy and brains into defending himself, will never win in any sort of conflict. How can he?

"There they come," murmured Evans. "See them?"

The first of the Gar columns popped into view off over the mountains near Black Lake. The invaders, a line of little dots, were rising out of a dark canyon ten miles or so away.

"They have been resting with one of the big platforms," said Ahla.

"See it coming up?"

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The blob of the platform was rising. Then another line of flying figures showed further away, wheeling to join the others.

"Just about where we figured they'd be," I said. For a moment we watched them. We were not between them and Aerita, but several miles to one side. I had calculated it carefully. My plan must be put into operation. The Gars must be lured out over the Black Lake.

"Well, we'll make the first jump now," said Evans. "If we don't, they'll pass without even seeing us."

True enough. At my signal the six hundred fluttering Aerite figures darted up from the shadows of the spire. We rose a few hundred feet and hung poised. That was a tense moment. Would the Gars ignore us and keep on their straight route for the Aerite city which was their goal? Or would that huge mechanism flash now, with a deadly intent to strike us down at this distance?

Chick Evans fluttered at me. "They're coming. About one thousand of them maybe."

THE big platform moved straight ahead, but a line of the Gars wheeled in our direction.

"Hold where we are," I shouted to Ahla.

Steadily the Gars came, two strings of them. At a distance of a mile, they rose to a higher altitude, wheeled and gathered in a group, a thousand feet diagonally above us. And behind them other lines were coming.

I did not dare wait any longer. At my signal each of us launched a whirling disc, flung it upward and outward, a little cloud of rotating bits of metal. They floated up at the still-distant Gars.

The Gars fired their first fusillade. From their cone-weapons pink fire rings sailed out and expanded. But these missles were aimed, not at us but at our whirling discs. The discs burst into fragments of fused metal.

Yet some of the fire rings reached us, too. A pink ray hit my shield and mushroomed, radiating heat, but I managed to fly away from the menace. A few Aerites, caught unawares however, dropped out of the air, engulfed in flames.

Realizing the deadliness of weapons used by these Gar invaders, I turned to Ahla.

"Quick," I shouted, "tell everyone to head for Black Lake."

Like frightened birds we shot diagonally away. Sounds of the pink light-rings were reaching us now crackling, hissing, popping little reports. Most of our discs had been destroyed, but I could see a few that got through, whirling tiny blades, bending their courses toward the Gars' bodies. One of the knives cut into a Gar's flimsy body, sailed through him and on to seek another victim. That Gar, gruesomely severed, fluttered and fell. Then another, and another went down, amid flares of pink light and trailing s m o k e from their own exploding weapons.

All this happened in a few seconds as we scattered to land on a rock-slope in the direction of the lake. Now the Gars fired their second round, this time directly at us, a ghastly volley. To some extent the shields warded off the pink rings.

As I dropped, I could again feel the impact of force waves hitting my shield. A shower of heat and sparks enveloped me. Then I went through it. But around me Aerites were falling. A fluttering Aerite girl, with her drapes burning, went past me. Ahla? For an instant I thought that it was Ahla, but it was not.

But we had not planned the encounter like this. We had had no conception of the ferocity, the recklessness with which the Gars would come after us. A hundred of the Aerites already must have fallen. It seemed for a second or two as though flaming, dropping forms were all around me.

By my orders, the rest of us attempted to land on a rock-slope which descended toward the shore of the lake. The slope was strewn with crags and boulders that would have given shelter. Once in shelter and scattered, I had thought we would be on even terms with whatever squads of the enemy came within range.

We had no time for that now. A fly-

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ing line of the bat-winged shapes had encircled us. We were still high over the rock-slope when the fight turned into a general mêlée.

Words cannot do justice to what followed. It became a deadly pyrotechnics in the midst of which fluttering bodies clashed in midair, sometimes falling in flames together I caught a glimpse of Chick Evans desperately fighting two Gars. I whirled to aid him, and his two assailants darted away. Then one came at me. My shield warded off a shower of pink sparks, and my whirling hand-knife cut through the flimsy Gar figure.

Next I heard Evans give a shout.

"Look, there goes Charlon."

The Gars were flinging bombs of glaring light now, dazzling white light. In the midst of them, I saw the figure of Charlon. His flash stabbed into an Aerite girl, and then he was gone, his great wings flapping as he rose into the smoke-filled gloom.

Next Tara went past me. Fluttering figures, some of them flaming, came between us. But she must have recognized me. The bomb-glare painted her beautiful face staring at me with a look of venom. Then she, too, was gone, rising up as I dropped to the rocks.

CHAPTER XV

Tara Makes Her Choice

FROM out of that hideous turmoil Chick Evans appeared, alighting on the slope beside me. In the darkness we crouched, panting. Air-heaviness proved to be a great handicap. All the Aerites had struggled against it from the moment we had left the crystal city.

"Been fighting Gars and need a rest," gasped Evans.

Smoke-fumes settled down around us. Overhead, it seemed the Gars momentarily were withdrawing. Dimly in the orange-green gloom we could see them circling off.

"There weren't more than a few hundred here," muttered Evans. "When the main body of them get after us it won't be nice."

But the Aerites had done their best. Only three or four hundred of us seemed to be left. We had been grievously punished. Most of our puny weapons were gone. The situation looked grave.

In the smoke-filled twilight now, I could see what was left of my little army still carrying out orders. Figures of Aerites were fluttering over the slope, scattering, scurrying away. Where was Ahla? I asked Chick Evans.

"Don't know," he said. "Haven't seen her." Then he gripped me. "Alan, look there. It's just about what we wanted."

Out over the mountains toward Mok the main columns of the advancing Gars became visible, lines of flying figures, with the mechanism-platforms among them. They had changed their course and were circling past us in a crescent sweep out toward the dark surface of the Black Lake.

Charlon's purpose seemed clear at last. Seemingly he had decided to by-pass us, to spare his men from hand-to-hand encounters.

"That would be his best move anyway," I murmured to Chick Evans. "From the shore of the Black Lake, a few miles above Aerita, he'd have no mountains to obstruct him and could set up his big, long-range projector. By this means he hopes to reduce the city to ruins at no risk to his men."

"If Boyle is only on the job," fumed Evans. And then he gave a cry. "Alan, look up there."

A few figures still fluttered in the smoke above us. Now a pair of them came wavering down, two figures, interlocked. One of them was Ahla. She had brought down another girl, wounded, in her arms. They touched the slope within a few feet of us.

"Ahla, I thank the stars you're safe," I cried.

Feeling relieved of my greatest worry, I jumped for her. She was stretching the wounded young woman out on the rocks. But her companion was not an Aerite girl. That slim figure, encased in sleek, flexible woven metal with Gar bat-wings

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that quivered on the rocks, was familiar to me.

It was Tara. She had been wounded, high in the air as she was making off with the Gars. Ahla had caught her and lowered her to safety. Now she lay here panting; and then I saw that one of her wings was broken and a portion of the other burned away.

"Alan Frane, so it is you," Tara murmured faintly. "You see, I am injured. Come sit by me, Alan."

Filled with pity I could not refuse this request. I moved to her side.

"You loved me, Alan," she murmured.

"Tara—"

"I thought you did."

"Tara, I'll do what I can for you now. You're wounded, so when this is over, you'll have every medical attention."

"When this is over." She seemed to ponder it. Her lips curled into a smile. "But it is over now. What could there be left, for me?"

HER gaze hardened as she looked at Ahla.

"You'll be all right," I said gently.

"Yes. Of course. That is true. Come closer, Alan."

As I bent over her, her hand flicked to her wide metal belt and came out again like a striking snake. I heard Ahla scream as a glowing needle-point of metal stabbed at my chest. But warned by Ahla's call, I swayed backward and caught Tara's wrist. A quick twist sent the glowing blade tinkling to the rocks.

With a groan the Gar girl sank back flat.

"Even that to be denied me," she whispered.

"Tara—" I began.

Then a simultaneous cry of warning from both Ahla and Chick made me jump to my feet.

An amazing occurrence followed. Again Tara's hand had touched her belt. Beneath the shining robe the narrow metal strips on her legs turned ruby red. Her breastplates began to glow. Under the warrior's headdress her black hair stirred and rose.

"Farewell, Alan Frane," she said. As she spoke she waved one of her jeweled hands. The fingers crackled with sparks.

"You would not dare touch me now, Alan Frane," she smiled.

I understood then.

"Tara!" I gasped. "Turn that thing off."

For a last time Tara smiled at me, mockingly.

Ahla and Chick Evans pulled me backward, away from her. Then the building current consumed her before our eyes. Pink flames leaped in melting metal wreckage and her body was engulfed.

Puffs of brown smoke arose, thickened, hiding her from view. Then it thinned out again.

Fascinated with horror, we stared. Where Tara had been, before us on the rocks lay a misty incandescent pile of slag.

A cry from my companions aroused me from my stupor of pity.

"Alan, the Gars are coming."

I whirled, to find Evans and Ahla staring out toward distant Black Lake. Unpredictable Charlon. His main army had gathered in the sky near the water. Now thousands of his men, with the platforms in their center, were winging toward us.

MEET DOUGLAS BARCLAY—THE MAN WITH THE ELASTIC IMAGINATION—IN

THE SPACE DWELLERS

By RAYMOND Z. GALLUN

NEXT ISSUE'S HALL OF FAME STORY

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Although no Aerites were visible, Charlon must have seen us land, scatter and hide on this rocky slope. So he had no intention of by-passing us and heading for Aerita.

One of the Gar engines sent a narrow orange ray sizzling toward us. It struck far above, hitting a pinnacle overhead. For a moment it clung to the summit and then like a giant fountain, the peak spouted flames into the air. A geyser of fire arched up for a thousand feet. Molten lava came tumbling down.

"Alan, let's pull out of here," gasped Chick Evans.

We had no need to give Ahla the order. From the rock shadows of the slope, the Aerites fluttered up in flight. The orange ray vanished and I stared up. The clifftop was gone, melted away.

The fountain of fire had missed us and the ray was gone, but from the top molten lava-streams came seething down with clouds of turgid smoke gushing from them.

Charlon's ray had touched the mountain top for some ten seconds. I shuddered as I pictured what he was planning—a bombardment like this of the shining city of Aerita.

We could not stop him now, that seemed obvious. Only three or four hundred Aerites were fluttering here. So Chick Evans, Ahla and I flew up and led them off to one side of the flaming mountain top.

Charlon had driven us from cover. Now his flying hordes came speeding toward us.

This was Boyle's chance. My mind returned to that weird subterranean Gar laboratory, under the city of Mok. The wounded Boyle would be lying where we had put him, in the control seat, with his little periscope image-grid beside him. Boyle would have been waiting and conditions were right for him now. We had tricked the Gars from the mountains to the edge of the lake and they were within range of Boyle's Uradonite radiance at last. And no Aerites were mingled in combat with them.

Boyle had the opportunity he craved. My heart was in my throat as I stared at the cloud of Gars, coming now to overwhelm us. I shouted at Ahla:

"Tell everyone to wait. Let none move."

Just a moment longer. Then if Boyle did not act, we would have to scatter, defeated, hunted by Gars. The main Army would sweep on, triumphant, to smash the golden city of Aerita as they had smashed this little mounain top.

TOO late a qualm of apprehension assailed me. Had I been wrong to trust Boyle? Would he redeem himself, or would he fail us again? Was he dead? Had he fainted?

Then at this supreme crisis I saw a wonderful thing happen. Out there over the dark lake surface, the leading string of the flying Gars seemed luffing up into the air. They appeared confused. They fluttered madly. The line of them was rising a hundred feet above where it had been. Then two hundred. Their struggling figures now tried to fly downward. They failed. Against all their efforts they continued to soar aloft, still higher.

Then the weird invisible force hit all of them at once. The huge platforms were rising, too. The Gars carrying the scaffolds had lost control.

The platforms turned over in the air as they were carried higher. The whole Gar army grew panic-stricken as it soared steadily into the sky. Soon the tiny specks, scattered, tumbled, churning masses of desperately flying figures, struggling to fly down against the force which was hurling them skyward.

Boyle had come through. He was doing his part, down there in the Gar laboratory. This had been my simple, but revolutionary discovery, when Tara had shown me the little apparatus which was the nerve-center of the big Gar mechanisms. I had applied to the Gar mechanism some of the principles of the Nullo-grav use of Uradonite. By a reversal of its electromagnetic poles, the Gar apparatus, instead of being a gravity intensifier, became gravity-repellent. Beneath the struggling, flying Gars now, the upward-streaming rays of anti-grav, inexorably were thrusting them away

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from Neptune's surface.

The idea had worked. All the Gars out there now were helpless waifs, lost in the sky, flung out from Neptune. They would continue to sail through the stratosphere, out into Space.

Soon they would be dead things, breaking apart in the vacuum, flung into Nothingness . . .

Later I grew aware as I stared, awed and triumphant, with my wings flapping and the Mansfield motor humming, that a crazy wind was tossing me. I heard Chick Evans laughing.

"We did it. It's all over, Alan. Pretty swell finish."

A crazy wind was tossing our little poised band of Aerites here, an abnormal wind which had sprung up suddenly as the air around us rushed into the upflung currents where the Gars had been. I found myself struggling against it. Where was Ahla? Then I saw her—a thousand feet away perhaps, out toward the dark surface of the lake. She was struggling to fly back.

I let myself go in the wind, flying toward her.

"Ahla, can you make it?" I called out.

"Yes, I think so," she panted. A few other figures could be seen around us in the gloom, Aerites who had been blown here, too, and who tried to buck the wind.

Also I saw one or two Gars, making off in terror.

I reached Alha and gripped her. As she clung to me, for a moment the powerful little Mansfield drove my wings to support us both. I held us level in the roaring wind. Ahla recovered her breath.

"All right now, Alan. Let me go."

I launched her and she started back toward the shore, with me following.

Then out of the turgid gloom a batlike figure appeared, huge and menacing. Like a malevolent demon it pounced at me and seized me in an iron grip. Our wings interlocked and the assailant let out a diabolical yell.

It was Charlon.

"I have you at last," screamed the Gar leader. "Alan Frane, you shall die!"

CHAPTER XVI

A Struggle for Life

SO QUICK and resolute had been the attack that I had no chance to dodge. Charlon was agile in the air, for it had always been his natural element. For a native of Neptune he was immensely powerful and his arms enclosed mine like steel bands.

My Mansfield-motored wings continued to flap and I heard one of the struts snap. Loose fabric fell down over my shoulders. Charlon emitted a laugh when this occurred. The expression on his handsome features was that of a fiend.

By a sudden effort I managed to free one of my hands too and to grasp him by the wrist. He let go of the cone weapon he held and it whirled away. Then we began to fight.

The wind swept us further out over the Black Lake. The surface of the water boiled, lashed to fury by the gale. Boyle long since had snapped off the anti-grav radiance. There was just the crazy storm here, a maelstrom of clashing air-currents that tossed us up and then whirled us down again as we struggled.

Once we broke apart. With my Nullograv belt still operating I was weightless. But with one broken wing I sagged, flopped—and the frenzied Charlon came pouncing at me again.

"I'll make an end of you, Frane," he panted. His fingers, with amazing strength in them, gripped me by the throat. My fist clipped him in the face. But he was not like a Gar; he was solid as an Earthman. His head snapped back under the blow, but he kept grinning and his grip tightened on my throat.

Treetops swept by under us. Desperately I tore his fingers loose and gulped in air.

"Charlon, you fool; the island means death to both," I warned him. Our struggling bodies crashed through a spindly treetop, tore through leafy

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branches and then we hit the ground.

A thrill of alarm ran through me. That squishing, mashing sound beneath us told me we had crashed upon the coiled body of a monstrous slug! It screamed and its head with glaring myriad eyes swayed up over us. Charlon failed to take heed.

"I've got you, Frane," he gloated.

Charlon was thinking only of killing me. We continued to roll in a writhing gluey mass, scattering the coiled slug as we fought. How well I remembered slugs. Ahla and I had struggled with one once before. Gluey flesh engulfed us.

But Charlon was not thinking of that. Perhaps he did not realize what it was. We were rolling, threshing. And I was aware of the breaking slug, with new heads springing into being upon all its slashed segments. A dozen sucker mouths had appeared. Forked heads were pecking at us, weird throats were screaming at us as we fought each other, heedless of the monster's gluey coils.

Charlon continued to grip my throat, clawing at it, then trying to pound my face with his other fist. Then abruptly I went limp. He promptly climbed on top of me. My free hand, fumbling beside me, gripped a thick sticky mass of slug-pulp. I raised it up and shoved it into Charlon's face.

He tried to scream an oath but gasped and choked. His grip loosened as he wildly wiped at his face trying to remove the horrible mass that blinded and choked him. Heaving his body off I got to my feet. Charlon rolled nearby with the quivering pulp of the mashed slug writhing upon him.

Again my mind flashed back to that other time when I had fought these horrible slugs. The Nullo-grav belt had saved Ahla and me then. I had leaped and pulled her out of the writhing mire when she could not free herself. I could escape but Charlon could not.

ONCE again using the grav belt to make me weightless, I leaped into the air. The force of the jump pulled me free. Strings and viscous chunks of the pulp clung to me and at normal weight, with that heavy mass added, my spring would have been futile. As I soared into the air I strove to shake off the entangling strings of flesh.

Ten feet under me Charlon still tried to rise, with his wings wildly beating. A segment of pulp, dropping from me struck him as it fell.

He went down again. He began to scream. Then as I tore through the treetops, I had a last glimpse of Charlon down on the ground as the tumbling, unkillable grey pulp engulfed him. For an instant one of his wings remained visible. Then it was sucked down and nothing remained.

Above the treetops I found Chick Evans fluttering, calling at me in anxious tones. The storm had blown itself out and Evans helped me with my broken wing. Then Ahla and some of the others came to assist me also.

That remnant of our Aerite army, about three hundred and fifty of us, in easy flight, because there was almost no air-heaviness now, winged its way on into the city of Mok.

I need not give the details of that entry. The news of the strange annihilation of Charlon's army already had reached there. Many persons sullenly watched us arrive but others of them welcomed us, the conquerors. And old Montoh, whom Tara fortunately had not yet murdered, was glad enough to surrender. He had never liked this affair anyway. He said so now to me bluntly, and I could well believe him. And he believed me, too, when I assured him we would work a compromise so that in the end the Gars would benefit. That would end all thought of war on Neptune.

And then Chick Evans, Ahla and I went down to the underground laboratory, to find Boyle. I recall how all of us were smiling, eager to tell him how well he had done. Now we could give him medical attention, fix up his smashed legs.

The pallid lab was just as we had left it. There had been, quite evidently, no alarm here. From the doorway we could see Boyle's figure still stretched in the

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control chair.

"Boyle, here we are," I called out. "You certainly did it perfectly. Well done, Boyle."

Gayly we rushed in. Then we stood before him, silent and numbed. He lay stretched there, with his dead eyes staring. But on his white lips there was still lingering a smile of satisfaction as if he gloried in the fact he had kept faith.

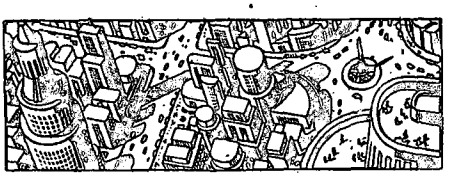
I THINK that's about all I need recount. We were able to repair the *Nomad,* and Chick Evans already has gone back to Earth, back with the news. He will bring Earth-freighters and mining equipment here to get the precious Uradonite. Earth needs it badly, and we do not need it on Neptune.

I am staying here on Neptune. There is much to do: the political adjustments between the Aerites and the Gars and the mining of the Uradonite.

Ahla and I have a little home in Aerita. There are times when it is filled with golden light and other times with restful darkness.

I am busy, and happy. Happiness comes with having work to do and doing it with prospects of success. And I have Ahla.

I think I am singularly blessed.



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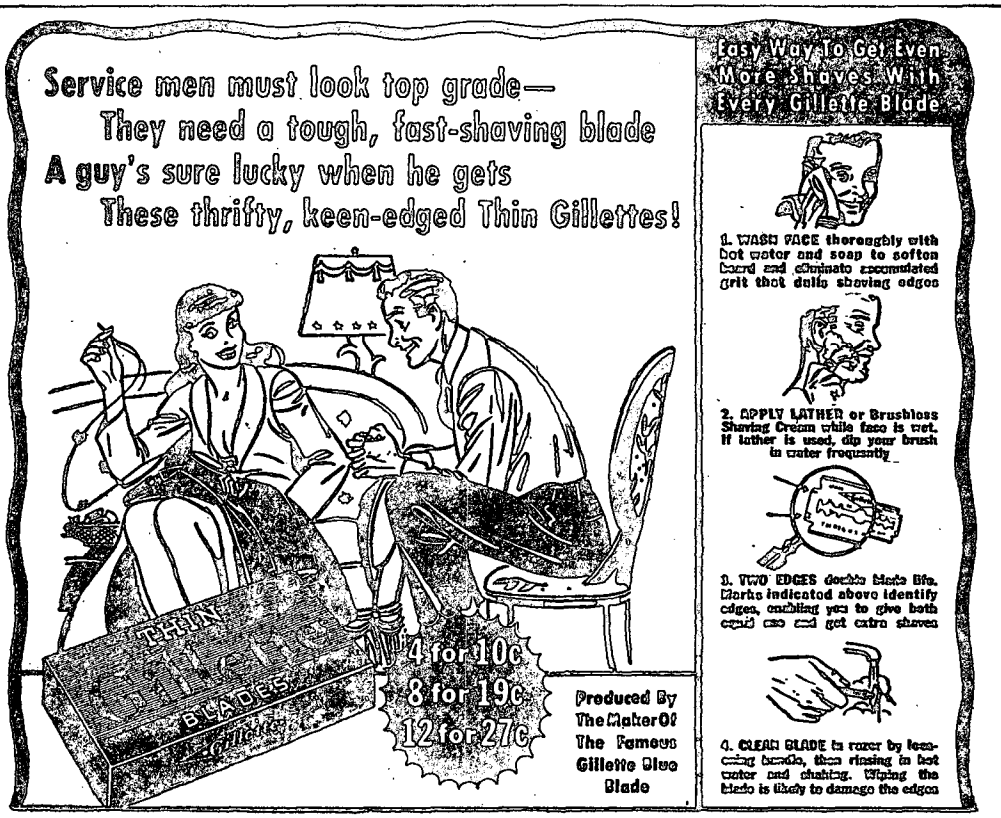
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THE IDEAL

By STANLEY G. WEINBAUM

The Perfect Woman and the Perfect Man Loom in Van Manderpootz' Mirror—but the Concept of Perfect Horror Is in the Offing!

"THIS," said the Franciscan, "is my Automaton, who at the proper time will speak, answer whatsoever question I may ask, and reveal all secret knowledge to me." He smiled as he laid his hand affectionately on the iron skull that topped the pedestal.

The youth gazed open-mouthed, first at the head and then at the friar.

"But it's iron!" he whispered. "The head is iron, good Father."

"Iron without, skill within, my son," said Roger Bacon. "It will speak, at the proper time and in its own manner, for so have I made it. A clever man can twist the devil's arts to God's ends, thereby cheating the fiend. . . . *Sst!* There sounds vespers! *'Plena gratia, ave Virgo—'*"

But it did not speak. Long hours, long weeks, the *doctor mirabilis* watched his creation, but the iron lips were silent and the iron eyes dull, and no voice but the great man's own sounded in his monkish cell, nor was there ever an answer to all the questions that he asked. Until one day when he sat surveying his work, composing a letter to Duns Scotus in distant Cologne—one day—

"Time is!" said the image, and smiled benignly.

The friar looked up. "Time is, indeed," he echoed. "Time it is that you give utterance, and to some assertion less obvious than that time is. For of course time is, else there were nothing at all. Without time—"

"Time was!" rumbled the image, still smiling, but sternly as the statue of Draco.

"Indeed time was," said the monk. "Time was, is, and will be, for time is the medium in which events occur. Matter exists in space, but events—"

The image smiled no longer. "Time is past!" it roared, in tones deep as the cathedral bell outside, and burst into ten thousand pieces. . . .

"THERE," said old Haskel van Manderpootz, shutting the book, "is my classical authority in this experiment. This story, overlaid as it is with medieval myth and legend, proves that Roger Bacon himself attempted the experiment—and failed." He shook a long finger at me. "Yet do not get the impression, Dixon, that Friar Bacon was not a great man. He was—extremely great, in fact. He lighted the torch that his namesake, Francis Bacon, took up four centuries later, and that now van Manderpootz rekindles."

I stared in silence.

"Indeed," resumed the professor, "Roger Bacon might almost be called a Thirteenth Century van Manderpootz, or van Manderpootz a Twenty-first Century Roger Bacon. His *Opus Majus, Opus Minor,* and *Opus Tertium—*"

"What," I interrupted impatiently, "has all this to do with—that?" I indicated the clumsy metal robot standing in the corner of the laboratory.

"Don't interrupt!" snapped van Manderpootz. "I'll—"

At this point I fell out of my chair. The mass of metal had ejaculated something like *"A-a-gh-rasp,"* and had lunged a single pace toward the window, arms upraised.

"What the devil!" I sputtered, as the thing dropped its arms and returned stolidly to its place.

"A car must have passed in the alley," said van Manderpootz indifferently. "Now, as I was saying, Roger Bacon—"

I ceased to listen. When van Manderpootz is determined to finish a statement, interrup-

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EDITOR'S NOTE

WHO is the greatest scientist that ever lived? Einstein? Galileo? Edison? If you have read this author's "The Worlds of If" you will know that it is van Manderpootz. He is the greatest scientist of all history! He admits it himself.

We find the great van Manderpootz again in this story. The same entrancing humor, that can't-put-it-down-till-you've-finished effect, pervades this Weinbaum story with the same masterful quality of his epic-making "Tweel" yarns.

Because "The Ideal," by the late Stanley G. Weinbaum, has stood the test of time, it has been nominated for SCIENTIFICTION'S HALL OF FAME and is reprinted here.

Nominate your own favorites! Send your vote to The Editor, STARTLING STORIES, 10 East 40th St., New York, N. Y.

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Through the metal throat of the mechanical carnivore's auto victim crashed steel teeth

tions are worse than futile. As an ex-student of his, I know. So I permitted my thoughts to drift to certain personal problems of my own, particularly "Tips" Alva, who was the most pressing problem of the moment. Yes, I mean Tips Alva, "vision dancer," the little blond imp who entertains on the "Yerba Maté" hour for that Brazilian company. Chorus girls, dancers, and television stars are a weakness of mine. Maybe that indicates a latent artistic soul in me. Maybe.

I'm Dixon Wells, you know, scion of the N. J. Wells Corporation, Engineers Extraordinary. I'm supposed to be an engineer myself. I say "supposed," because in the seven years since my graduation, my father hasn't given me much opportunity to prove it. He has a strong sense of the value of time, and I'm cursed with the unenviable quality of being late to anything and for everything. He even asserts that the occasional designs I submit are Late Jacobean, but that isn't fair. They're Post Romanesque.

Old N. J. also objects to my penchant for ladies of the stage and "vision" screen, and periodically threatens to cut my allowance, though that's supposed to be a salary. It's inconvenient to be so dependent, and sometimes I regret that unfortunate market crash of 2009 that wiped out my own money, although it did keep me from marrying "Whimsey" White, and van Manderpootz, through his subjunctivisor, succeeded in proving that that would have been a catastrophe.

But it turned out nearly as much of a disaster anyway, as far as my feelings were concerned. It took me months to forget Joan Caldwell and her silvery eyes. That was just another instance when I was a little late.

Van Manderpootz himself is my old physics

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professor, head of the Department of Newer Physics at N. Y. U., and a genius, but a bit eccentric. Judge for yourself.

"And that's the thesis," he said suddenly, interrupting my thoughts.

"Eh? Oh, of course. But what's that grinning robot got to do with it?"

He purpled. "I've just told you!" he roared. "Idiot! Imbecile! To dream while van Manderpootz talks! Get out! Get out!"

I got. It was late anyway, so late that I overslept more than usual in the morning, and suffered more than the usual lecture on promptness from my father at the office.

Van Manderpootz had forgotten his anger by the next time I dropped in for an evening. The robot still stood in the corner near the window, and I lost no time in asking its purpose.

"It's just a toy I had some of the students construct," he explained. "There's a screen of photo-electric cells behind the right eye, so connected that when a certain pattern is thrown on them, it activates the mechanism. The thing's plugged into a light circuit, but it really ought to run on gasoline."

"Why?"

"Well, the pattern it's set for is the shape of an automobile. See here." He picked up a card from his desk, cut in the outlines of a streamlined car like those of that year. "Since only one eye is used," he continued, "the thing can't tell the difference between a full-sized vehicle at a distance and this small outline nearby. It has no sense of perspective."

HE HELD the bit of cardboard before the eye of the mechanism. Instantly came its roar of *"A-a-gh-rasp!"* and it leaped forward a single pace, arms upraised. Van Manderpootz withdrew the card, and again the thing relapsed stolidly into its place.

"What the devil!" I exclaimed. "What's it for?"

"Does van Manderpootz ever do work without reason back of it? I use it as a demonstration in my seminar."

"To demonstrate what?"

"The power of reason," said van Manderpootz solemly.

"How? And why ought it to work on gasoline instead of electric power?"

"One question at a time, Dixon. You have missed the grandeur of van Manderpootz's concept. See here, this creature, imperfect as it is, represents the predatory machine. It is the mechanical parallel of the tiger, lurking in its jungle to leap on living prey. This monster's jungle is the city; its prey is the unwary machine that follows the trails called streets. Understand?"

"No."

"Well, picture this automaton, not as it is, but as van Manderpootz could make it if he wished. It lurks, gigantic, in the shadows of buildings; it creeps stealthily through dark alleys; it skulks on deserted streets, with its gasoline engine purring quietly. Then—an unsuspecting automobile flashes its image on the screen back of its eyes. It leaps. It seizes its prey, swinging in its steel arms to its steel jaws.

Through the metal throat of its victim crash steel teeth. The blood of its prey—the gasoline, that is—is drained into its stomach, or its gas-tank. With renewed strength it flings away the husk and prowls on to seek other prey. It is the machine carnivore, the tiger of mechanics."

I suppose I stared dumbly enough. It occurred to me suddenly that the brain of the great van Manderpootz was cracking.

"What the—" I gasped.

"That," he said blandly, "is but a concept. I have many another use for the toy. I can prove anything with it, anything I wish."

"You can? Then prove something."

"Name your proposition, Dixon."

I hesitated, nonplussed.

"Come!" he said impatiently. "Look here. I will prove that anarchy is the ideal government, or that heaven and hell are the same place, or that—"

"Prove that!" I said. "About heaven and hell."

"Easily. First we will endow my robot with intelligence. I add a mechanical memory by means of the old Cushman delayed valve. I add a mathematical sense with any of the calculating machines. I give it a voice and a vocabulary with the magnetic-impulse wire phonograph. Now the point I make is this: Granted an intelligent machine, does it not follow that every other machine constructed like it must have the identical qualities? Would not each robot given the same insides have exactly the same character?"

"No!" I snapped. "Human beings can't make two machines exactly alike. There'd be tiny differences. One would react quicker than others; or one would prefer Fox Air-splitters as prey, while another reacted most vigorously to Carnecars. In other words, they'd have—individuality!" I grinned in triumph.

"My point exactly," observed van Manderpootz. "You admit, then, that this individuality is the result of imperfect workmanship. If our means of manufacture were perfect, all robots would be identical, and this individuality would not exist. Is that true?"

"I—suppose so."

"Then I argue that our own individuality is due to our falling short of perfection. All of us—even van Manderpootz—are individuals only because we are not perfect. Were we perfect, each of us would be exactly like everyone else. True?"

"Uh—yes."

"But heaven, by definition, is a place where all is perfect. Therefore, in heaven everybody is exactly like everybody else, and therefore, everybody is thoroughly and completely bored! There is no torture like boredom, Dixon, and . . . Well, have I proved my point?"

I WAS floored.

"But about anarchy, then?" I stammered.

"Simple. Very simple for van Manderpootz. See here. With a perfect nation—that is, one whose individuals are all exactly alike, which I have just proved to constitute perfection—with a perfect nation, I repeat, laws and government are utterly superfluous. If everybody reacts to stimuli in the same way, laws are quite useless, obviously. If,

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for instance, a certain event occurred that might lead to a declaration of war, why, everybody in such a nation would vote for war at the same instant. Therefore government is unnecessary, and therefore anarchy is the ideal government, since it is the proper government for a perfect race." He paused. "I shall now prove that anarchy is not the ideal government."

"Never mind!" I begged. "Who am I to argue with van Manderpootz? But is that the whole purpose of this dizzy robot? Just a basis for logic?"

The mechanism replied with its usual rasp as it leaped toward some vagrant car beyond the window.

"Isn't that enough?" growled van Manderpootz. "However"—his voice dropped—"I have even a greater destiny in mind. My boy, van Manderpootz has solved the riddle of the Universe!" He paused impressively. "Well, why don't you say something?"

"Uh!" I gasped. "It's—uh—marvelous!"

"Not for van Manderpootz," he said modestly.

"But what is it?"

"Eh—Oh!" he frowned. "Well, I'll tell you, Dixon. You won't understand, but I'll tell you." He coughed. "As far back as the early Twentieth Century," he resumed, "Einstein proved that energy is particular. Matter is also particular, and now van Manderpootz adds that space and time are discrete!" He glared at me.

"Energy and matter are particular," I murmured, "and space and time are discrete! How moral of them!"

"Imbecile!" he blazed. "To pun on the words of van Manderpootz! You know very well that I mean particular and discrete in the physical sense. Matter is composed of particles, therefore it is particular. The particles of matter are called electrons, protons, and neutrons, and those of energy, quanta. I now add two others—the particles of space I call spations; those of time, chronons."

"And what in the devil," I asked, "are particles of space and time?"

"Just what I said!" snapped van Manderpootz. "Exactly as the particles of matter are the smallest pieces of matter that can exist, just as there is no such thing as half of an electron, or for that matter, half a quantum, so the chronon is the smallest possible fragment of time, and the spation the smallest possible bit of space. Neither time nor space are continuous. Each is composed of these infinitely tiny fragments."

"Well, how long is a chronon in time? How big is a spation in space?"

"Van Manderpootz has even measured that. A chronon is the length of time it takes one quantum of energy to push one electron orbit to the next. There can obviously be no shorter interval of time, since an electron is the smallest unit of matter and the quantum the smallest unit of energy. And a spation is the exact volume of a proton. Since nothing smaller exists, that is obviously the smallest unit of space."

"Well, look here," I argued. "Then what's in between these particles of space and time? If time moves, as you say, in jerks of one chronon each, what's between the jerks?"

"Ah!" said the great van Manderpootz. "Now we come to the heart of the matter. In between the particles of space and time, inside the particles of matter and energy, must obviously be something that is neither space, time, matter, nor energy. A hundred years ago Shapley anticipated van Manderpootz in a vague way when he announced his cosmoplasma, the great underlying matrix in which time and space and the Universe are embedded.

"Now van Manderpootz announced the ultimate unit, the universal particle, the focus in which matter, energy, time, and space meet, the unit from which electrons, protons, neutrons, quanta, spations, and chronons are all constructed. The riddle of the Universe is solved by what I have chosen to name the cosmon." His blue eyes bored into me.

"Magnificent!" I said feebly, knowing that some such word was expected. "But what good is it?"

"What good is it?" he roared. "It provides—or will provide, once I work out a few details—the means of turning energy into time, or space into matter, or time into space, or—" He sputtered into silence. "Fool!" he muttered. "To think that you studied under the tutelage of van Manderpootz. I blush, I actually blush!"

ONE couldn't have told it if he were blushing. His face was always rubicund enough. "Colossal!" I said hastily. "What a mind!"

That mollified him. "But that's not all," he proceeded. "Van Manderpootz never stops short of perfection. I now announce the unit particle of thought—the psychon!"

This was a little too much. I simply stared.

"Well may you be dumbfounded," said van Manderpootz. "I presume you are aware, by hearsay at least, of the existence of thought. The psychon, unit of thought, is one electron plus one proton, which are bound so as to form one neutron, embedded in one cosmon, occupying a volume of one spation, driven by one quantum for a period of one chronon. Very obvious; very simple."

"Oh, very!" I echoed. "Even I can see that that equals one psychon."

He beamed. "Excellent! Excellent!"

"And what," I asked, "will you do with the psychons?"

"Ah!" he rumbled. "Now we go even past the heart of the matter, and return to Isaak here." He jammed a thumb toward the robot. "Here I will create Roger Bacon's mechanical head. In the skull of this clumsy creature will rest such intelligence as not even van Manderpootz—I should say, as only van Manderpootz—can conceive. It remains merely to construct my idealizator."

"Your idealizator?"

"Of course. Have I not just proved that thoughts are as real as matter, energy, time, or space? Have I not just demonstrated that one can be transformed, through the cosmon, into any other? My idealizator is the means of transforming psychons to quanta, just as, for instance, a Crookes tube or X-ray tube transforms matter to electrons. I will make your thoughts visible! And not your thoughts as they are in that numb brain of yours, but

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in ideal form.

"Do you see? The psychons of your mind, just as all electrons are identical, whether from gold or iron. Yes! Your psychons"—his voice quavered—"are identical, with those from the mind of—van Manderpootz!" He paused, shaken.

"Actually?" I exclaimed.

"Actually. Fewer in number, of course, but identical. Therefore, my idealizator shows your thought released from the impress of your personality. It shows it—ideal!"

Well, I was late to the office again. . . .

A week later I thought of van Manderpootz. Tips was on tour somewhere, but I didn't dare take anyone else out because I'd tried it once before and she had heard about it. So, with nothing to do, I finally dropped around to the professor's quarters, found him missing, and eventually located him in his laboratory at the Physics Building.

He was puttering around the table that had once held that blasted subjunctivisor of his. Now it supported an indescribable mess of tubes and tangled wires, and as its most striking feature, a circular plane mirror etched with a grating of delicately scratched lines.

"Good evening, Dixon," he rumbled.

I echoed his greeting. "What's that?" I asked.

"My idealizator. A rough model, much too clumsy to fit into Isaak's iron skull. I'm just finishing it to try it out." He turned glittering blue eyes on me. "How fortunate that you're here. It will save the world a terrible risk."

"A risk?"

"Yes. It is obvious that too long an exposure to the device will extract too many psychons, and leave the subject's mind in a sort of moronic condition. I was about to accept the risk, but I see now that it would be woefully unfair to the world to endanger the mind of van Manderpootz. But you are at hand, and will do very well."

"Oh, no I won't!"

"Come, come!" he said, frowning. "The danger is negligible. In fact, I doubt whether the device will be able to extract any psychons from your mind. At any rate, you will be perfectly safe for a period of at least half an hour. I, with a vastly more productive mind, could doubtless stand the strain indefinitely, but my responsibility to the world is too great to chance it until I have tested the machine on someone else. You should be proud of the honor."

"Well, I'm not!"

BUT my protest was feeble, and after all, despite his overbearing mannerisms, I knew van Manderpootz liked me, and I was positive he would not have exposed me to any real danger. In the end I found myself seated before the table facing the etched mirror.

"Put your face against the barrel," said van Manderpootz, indicating a stove-pipelike tube. "That's merely to cut off extraneous sights, so that you can see only the mirror. Go ahead, I tell you! It's no more than the barrel of a telescope or microscope."

I complied. "Now what?" I asked.

"What do you see?"

"My own face in the mirror."

"Of course. Now I start the reflector rotating."

There was a faint whir, and the mirror was spinning smoothly, still with only a slightly blurred image of myself.

"Listen, now," continued van Manderpootz. "Here is what you are to do. You will think of a generic noun. 'House,' for instance. If you think of house, you will see, not an individual house, but your ideal house, the house of all your dreams and desires. If you think of horse, you will see what your mind conceives as the perfect horse, such a horse as dream and longing create. Do you understand? Have you chosen a topic?"

"Yes."

After all, I was only twenty-eight. The noun I had chosen was—girl.

"Good," said the professor. "I turn on the current."

There was a blue radiance behind the mirror. My own face still stared back at me from the spinning surface, but something was forming behind it, building up, growing. I blinked. When I focused my eyes again, it was—she was—there.

Lord! I can't begin to describe her. I don't know even if I saw her clearly that first time. It was like looking into another world and seeing the embodiment of all longings, dreams, aspirations, and ideals. It was so poignant a sensation that it crossed the borderline into pain. It was—well, exquisite torture or agonized delight. It was at once unbearable and irresistible.

But I gazed. I had to. There was a haunting familiarity about the impossibly beautiful features. I had seen the face—somewhere, sometime.

In dreams? No! I realized suddenly what was the source of that familiarity. This was no living woman, but a synthesis. Her nose was the tiny, impudent one of Whimsy White at her loveliest moment. Her lips were the perfect bow of Tips Alva. Her silvery eyes and dusky velvet hair were those of Joan Caldwell. But the aggregate, the sum total, the face in the mirror—that was none of these. It was a face impossibly, incredibly, outrageously beautiful.

Only her face and throat were visible, and the features were cool, expressionless, and still as a carving. I wondered suddenly if she could smile, and with the thought, she did.

If she had been beautiful before, now her beauty flamed to such a pitch that it was—well, insolent. It was an affront to be so lovely; it was insulting. I felt a wild surge of anger that the image before me should flaunt such beauty, and yet be non-existent! It was deception, cheating, fraud, a promise that could never be fulfilled.

Anger died in the depths of that fascination. I wondered what the rest of her was like, and instantly she moved gracefully back until her full figure was visible. I must be a prude at heart, for she wasn't wearing the usual cuirass and shorts of that year, but an iridescent four-paneled costume that all but concealed her dainty knees. But her form was slim and erect as a column of cigarette smoke in still air, and I knew that she could dance like a fragment of mist on water.

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And with that thought she did move, dropping a low curtsy, and looking up with the faintest possible flush crimsoning the curve of her throat. Yes, I must be a prude at heart. Despite Tips Alva and Whimsy White and the rest, my ideal was modest.

IT WAS unbelievable that the mirror was simply giving back my thoughts. She seemed as real as myself and, after all, I guess she was. As real as myself, no more, no less, because she was part of my own mind. And at this point I realized that van Manderpootz was shaking me and bellowing:

"Your time's up. Come out of it! Your half-hour's up!"

He must have switched off the current. The image faded, and I took my face from the tube, dropping it on my arms.

"O-o-o-o-o-oh!" I groaned.

"How do you feel?" he snapped.

"Feel? All right, physically." I looked up.

Concern flickered in his blue eyes.

"What's the cube root of four-nine-one-three?" he crackled sharply.

I've always been quick at figures. "It's—uh—seventeen," I returned dully. "What the devil—"

"You're all right mentally," he announced. "Now, why were you sitting there like a dummy for half an hour? My idealizator must have worked, as is only natural for a van Manderpootz creation, but of what were you thinking?"

"I thought—I thought of 'girl,'" I groaned.

He snorted. "Hah! You would, you idiot! 'House' or 'horse' wasn't good enough. You had to pick something with emotional connotations. Well, you can start right in forgetting her, because she doesn't exist."

I couldn't give up hope as easily as that.

"But can't you—can't you—" I didn't even know what I meant to ask.

"Van Manderpootz," he announced, "is a mathematician, not a magician. Do you expect me to materialize an ideal for you?" When I had no reply but a groan, he continued. "Now I think it safe enough to try the device myself. I shall take—let's see—the thought 'man.' I shall see what the superman looks like, since the ideal of van Manderpootz can be nothing less than superman." He seated himself. "Turn that switch," he said. "Now!"

I did. The tubes glowed into slow blue life. I watched dully, disinterestedly. Nothing held any attraction for me after that image of the ideal.

"Huh!" said van Manderpootz suddenly. "Turn it on, I say! I see nothing but my own reflection."

I stared, then burst into a hollow laugh. The mirror was spinning; the banks of tubes were glowing; the device was operating.

Van Manderpootz raised his face, a little redder than usual. I laughed half hysterically.

"After all," he said huffily, "one might have a lower ideal of man than van Manderpootz. I see nothing nearly so humorous as your situation."

The laughter died. I went miserably home, spent half the remainder of the night in morose contemplation, smoked nearly two packs of cigarettes, and didn't get to the office at all the next day. . . .

Tips Alva got back to town for a week-end broadcast, but I didn't even bother to see her. I just phoned her and told her I was sick. I guess my face lent credibility to the story, for she was duly sympathetic, and her face in the phone screen was quite anxious. Even at that, I couldn't keep my eyes away from her lips, except for a bit too lustrous make-up, they were the lips of the ideal. But they weren't enough; they just weren't enough.

Old N. J. began to worry again. I couldn't sleep late of mornings any more, and after missing that one day, I kept getting down earlier and earlier until one morning I was only ten minutes late. He called me in at once.

"Look here, Dixon," he said. "Have you been to a doctor recently?"

"I'm not sick," I said listlessly.

"Then for heaven's sake, marry the girl! I don't care what chorus she kicks in, marry her and act like a human being again."

"I—can't!"

"Oh. She's already married, eh?"

WELL, I couldn't tell him she didn't exist. I couldn't say I was in love with a vision, a dream, an ideal. He thought I was a little crazy anyway, so I just muttered "Yeah," and didn't argue when he said gruffly: "Then you'll get over it. Take a vacation. Take two vacations. You might as well for all the good you are around here."

I didn't leave New York. I lacked the energy. I just mooned around the city for a while, avoiding my friends, and dreaming of the impossible beauty of the face in the mirror. And by and by the longing to see that vision of perfection once more began to become overpowering.

I don't suppose anyone except me can understand the lure of that memory. The face, you see, had been my ideal, my concept of perfection. One sees beautiful women here and there in the world; one falls in love, but always, no matter how great their beauty nor how deep one's love, they fall short in some degree of the secret vision of the ideal.

But not the mirrored face. She was my ideal, and therefore, whatever imperfections she might have had in the minds of others, in my eyes she had none. None, that is, save the terrible one of being only an ideal, and therefore unattainable—but that is a fault inherent in all perfection.

It was a matter of days before I yielded. Common sense told me it was futile, even foolhardy, to gaze again on the vision of perfect desirability. I fought against the hunger, but I fought hopelessly, and was not at all surprised to find myself one evening rapping on van Manderpootz's door in the University Club.

He was not there. I had been hoping he wouldn't be, since that would give me an excuse to seek him in his laboratory in the Physics Building, to which I would have dragged him anyway.

There I found him, writing some sort of notations on the table that held the idealizator.

"Hello, Dixon," he said. "Did it ever occur

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to you that the ideal university cannot exist? Naturally not, since it must be composed of perfect students and perfect educators, in which case the former could have nothing to learn and the latter, therefore, nothing to teach."

What interest had I in the perfect university and its inability to exist? My whole being was desolate over the non-existence of another ideal.

"Professor," I said tensely, "may I use that—that thing of yours again? I want to—uh—see something."

My voice must have disclosed the situation, for van Manderpootz looked up sharply.

"So!" he snapped. "Do you disregard my advice? Forget her, I said. Forget her because she doesn't exist."

"But I can't! Once more, Professor—only once more!"

He shrugged, but his blue, metallic eyes were a little softer than usual. After all, for some inconceivable reason, he liked me.

"Well, Dixon," he said, "you're of age and supposed to be of mature intelligence. I tell you that this is a stupid request, and van Manderpootz always knows what he's talking about. If you want to stupefy yourself with the opium of impossible dreams, go ahead. This is the last chance you'll have, for tomorrow the idealizator of van Manderpootz goes into the Bacon head of Isaak there. I shall shift the oscillators so that the psychons, instead of becoming light quanta, emerge as an electron flow—a current which will actuate Isaak's vocal apparatus and come out as speech."

He paused musingly.

"Van Manderpootz will head the voice of the ideal. Of course Isaak can return only what psychons he received from the brain of the operator, but just as the images in the mirror, the thoughts will have lost their human impress, and the words will be those of an ideal." He perceived that I wasn't listening, I suppose. "Go ahead, imbecile!" he grunted.

I did. The glory that I hungered after flamed slowly into being, incredible in loveliness, and somehow, unbelievably, even more beautiful than on that other occasion. I know why now. Long afterward, van Manderpootz explained that the very fact that I had seen an ideal once before had altered my ideal, raised it to a higher level. With that face among my memories, my concept of perfection was different than it had been.

SO I gazed and hungered. Readily and instantly the being in the mirror responded to my thoughts with smile and movement. When I thought of love, her eyes blazed with such tenderness that it seemed as if I—I, Dixon Wells—were part of those pairs who had made the great romances of the world, Heloise and Abelard, Tristram and Isolde, Aucassin and Nicolette.

It was like the thrust of a dagger to feel van Manderpootz shaking me, to hear his gruff voice calling:

"Out of it! Time's up."

I groaned and dropped my face on my hands. The professor had been right, of course. This insane repetition had only intensified an unfulfillable longing, and had made a bad mess ten times as bad. Then I heard him muttering behind me.

"Strange!" he murmured. "In fact, fantastic. Oedipus—Oedipus of the magazine covers and billboards."

I looked dully around. He was standing behind me, squinting, apparently, into the spinning mirror beyond the end of the black tube.

"Huh?" I grunted wearily.

"That face," he said. "Very queer. You must have seen her features on a hundred magazines, on a thousand billboards, on countless 'vision' broadcasts. The oedipus complex in a curious form."

"Eh? Could you see her?"

"Of course!" he grunted. "Didn't I say a dozen times that the psychons are transmuted to perfectly ordinary quanta of visible light? If you could see her, why not I?"

"But—what about billboards and all?"

"That face," said the professor slowly. "It's somewhat idealized, of course, and certain details are wrong. Her eyes aren't that pallid silver-blue you imagined. They're green—sea-green, emerald colored."

"What the devil," I asked hoarsely, "are you talking about?"

"About the face in the mirror. It happens to be, Dixon, a close approximation of the features of de Lisle d'Agrion, the Dragon Fly!"

"You mean she's real? She exists? She lives? She—"

"Wait a moment, Dixon. She's real enough, but in accordance with your habit, you're a little late. About twenty-five years too late, I should say. She must now be somewhere in the fifties—let's see—fifty-three, I think. But during your early childhood, you must have seen her face pictured everywhere. De Lisle d'Agrion, the Dragon Fly."

I could only gulp. That blow was devastating.

"You see," continued van Manderpootz, "one's ideals are implanted early. That's why you continually fall in love with girls who posses one or another feature that reminds you of her, her hair, her nose, her mouth, her eyes. Very simple, but rather curious."

"Curious!" I blazed. "Curious, you say! Every time I look into one of your blasted contraptions I find myself in love with a myth! A girl who's dead, or married, or unreal, or turned into an old woman! Curious, eh? Yeah, funny, isn't it?"

"Just a moment," said the professor placidly. "It happens, Dixon, that she has a daughter. What's more, Denise resembles her mother. And what's still more, she's arriving in New York next week to study American letters at the University here. She writes, you see."

That was too much for immediate comprehension.

"How—how do you know?" I gasped.

It was one of the few times I have seen the colossal blandness of van Manderpootz ruffled. He reddened a trifle, and said slowly:

"It also happens, Dixon, that many years ago in Amsterdam, Haskel van Manderpootz and de Lisle d'Agrion were—friendly. More than friendly, I might say, but for the fact that

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two such powerful personalities as the Dragon Fly and van Manderpootz were always at odds." He frowned. "I was almost her second husband. She's had seven, I believe. Denise is the daughter of her third."

"Why—why is she coming here?"

"Because," he said with dignity, "van Manderpootz is here. I am still a friend of de Lisle's." He turned and bent over the complex device on the table. "Hand me that wrench," he ordered. "Tonight I dismantle this, and tomorrow start reconstructing it for Isaak's head. . . ."

BUT when, the following week, I rushed eagerly back to van Manderpootz's laboratory, the idealizator was still in place. The professor greeted me with a humorous twist to what was visible of his bearded mouth.

"Yes, it's still here," he said, gesturing at the device. "I've decided to build an entirely new one for Isaak, and besides, this one has afforded me considerable amusement. Furthermore, in the words of Oscar Wilde, who am I to tamper with a work of genius? After all, the mechanism is the product of the great van Manderpootz."

He was deliberately tantalizing me. He knew that I hadn't come to hear him discourse on Isaak, or even on the incomparable van Manderpootz. Then he smiled and softened, and turned to the little inner office adjacent, the room where Isaak stood in metal austerity.

"Denise!" he called, "Come here."

I don't know exactly what I expected, but I do know that the breath left me as the girl entered. She wasn't exactly my image of the ideal, of course. She was perhaps the merest trifle slimmer, and her eyes—well, they must have been much like those of de Lisle d'Agrion, for they were the clearest emerald I've ever seen. They were impudently direct eyes, and I could imagine why van Manderpootz and the Dragon Fly might have been forever quarreling. That was easy to imagine, looking into the eyes of the Dragon Fly's daughter.

Nor was Denise, apparently, quite as femininely modest as my image of perfection. She wore the extremely unconcealing costume of the day, which covered, I suppose, about as much of her as one of the one-piece swimming suits of the middle years of the Twentieth Century. She gave an impression, not so much of fleeting grace as of litheness and supple strength, an air of independence, frankness, and—I say it again—impudence.

"Well!" she said coolly as van Manderpootz presented me. "So you're the scion of the N. J. Wells Corporation. Every now and then your escapades enliven the Paris Sunday supplements. Wasn't it you who snared a million dollars in the market so you could ask Whimsy White—"

I flushed. "That was greatly exaggerated," I said hastily. "And anyway, I lost it back before we—uh—before I—"

"Not before you made somewhat of a fool of yourself, I believe," she finished sweetly.

Well, that's the sort she was. If she hadn't been so infernally lovely, if she hadn't looked so much like the face in the mirror, I'd have flared up, said, "Pleased to have met you," and never have seen her again. But I couldn't get angry, not when she had the dusky hair, the perfect lips, the saucy nose of the being who to me was ideal.

So I did see her again, and several times again. In fact, I suppose I occupied most of her time between the few literary courses she was taking, and little by little I began to see that in other respects besides the physical she was not so far from my ideal. Beneath her impudence was honesty, and frankness, and, despite herself, sweetness, so that even allowing for the head-start I'd had, I fell in love

THROUGH THE BLACKBOARD

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pretty hastily. And what's more, I knew she was beginning to reciprocate.

That was the situation when I called for her one noon and took her over to van Manderpootz's laboratory. We were to lunch with him at the University Club, but we found him occupied in directing some experiment in the big laboratory beyond his personal one, untangling some sort of mess that his staff had blundered into.

So Denise and I wandered back into the smaller room, perfectly content to be alone together. I simply couldn't feel hungry in her presence; just talking to her was enough of a substitute for food.

"I'm going to be a good writer," she was saying musingly. "Some day, Dick, I'm going to be famous."

Well, everyone knows how correct that prediction was. I agreed with her instantly.

She smiled. "You're nice, Dick," she said. "Very nice."

"Very?"

"Very!" she said emphatically. Then her green eyes strayed over to the table that held the idealizator. "What crack-brained contraption of Uncle Haskel's is that?" she asked.

I EXPLAINED, rather inaccurately, I'm afraid, but no ordinary engineer can follow the ramifications of a van Manderpootz conception. Nevertheless, Denise caught the gist of it and her eyes glowed emerald fire.

"It's fascinating!" she exclaimed. She rose and moved over to the table. "I'm going to try it!"

"Not without the professor, you won't! It might be dangerous."

That was the wrong thing to say. The green eyes glowed brighter as she cast me a whimsical glance.

"But I am," she said. "Dick, I'm going to see my ideal man!" She laughed softly.

I was panicky. Suppose her ideal turned out tall and dark and powerful, instead of short and sandy-haired and a bit — well, chubby, as I am.

"No!" I said vehemently. "I won't let you!"

She laughed again. I suppose she read my consternation, for she said softly, "Don't be silly, Dick." She sat down, placed her face against the opening of the barrel, and commanded, "Turn it on."

I couldn't refuse her. I set the mirror whirling, then switched on the bank of tubes. Then immediately I stepped behind her, squinting into what was visible on the flashing mirror, where a face was forming, slowly, vaguely.

I thrilled. Surely the hair of the image was sandy. I even fancied now that I could trace a resemblance to my own features. Perhaps Denise sensed something similar, for she suddenly withdrew her eyes from the tube and looked up with a faintly embarrassed flush, a thing most unusual for her.

"Ideals are dull!" she said. "I want a real thrill. Do you know what I'm going to see? I'm going to visualize ideal horror. That's what I'll do. I'm going to see absolute horror!"

"Oh, no you're not!" I gasped. "That's a terribly dangerous idea!"

Off in the other room I heard the voice of van Manderpootz.

"Dixon!"

"Dangerous, bosh!" Denise retorted. "I'm a writer, Dick. All this means to me is material. It's just experience, and I want it."

Van Manderpootz again. "Dixon! Dixon! Come here."

"Listen, Denise," I said. "I'll be right back. Don't try anything until I'm here—please!"

I dashed into the big laboratory. Van Manderpootz was facing a cowed group of assistants who quite apparently were in extreme awe of the great man.

"Hah, Dixon!" he rasped. "Tell these fools what an Emmerich valve is, and why it won't operate in a free electronic stream. Let 'em see that even an ordinary engineer knows that much."

Well, an ordinary engineer doesn't, but it happened that I did. Not that I'm particularly exceptional as an engineer, but I did happen to know that, because a year or two before I'd done some work on the big tidal turbines up in Maine, where they have to use Emmerich valves to guard against electrical leakage from the tremendous potentials in their condensers.

So I started explaining, and van Manderpootz kept interpolating sarcasms about his staff, and when I finally finished, I suppose I'd been in there about half an hour. And then —then I remembered Denise!

I left van Manderpootz staring as I rushed back, and sure enough, there was the girl with her face pressed against the barrel, and her hands gripping the table edge. Her features were hidden, of course, but there was something about her strained position, her white knuckles—

"Denise!" I yelled. "Are you all right? Denise!"

She didn't move. I stuck my face in between the mirror and the end of the barrel and peered up the tube at her visage, and what I saw left me all but stunned. Have you ever seen stark, mad, infinite terror on a human face? That was what I saw in Denise's—inexpressible, unbearable horror, worse than the fear of death could ever be. Her green eyes were widened so that the whites showed around them. Her perfect lips were contorted, her whole face strained into a mask of sheer terror.

I rushed for the switch, but in passing I caught a single glimpse of—of what showed in the mirror. Incredible! Terror-laden, horrifying things—there just aren't words for them. There are no words.

DENISE didn't move as the tubes darkened. I raised her face from the barrel, and when she glimpsed me she did move. She flung herself out of that chair and away, facing me with such mad terror that I halted.

"Denise!" I cried. "It's just Dick. Look, Denise!"

But as I moved toward her, she uttered a choking scream, her eyes dulled, her knees gave, and she fainted. Whatever she had seen, it must have been appalling to the uttermost, for Denise was not the sort to faint. . . .

It was a week later that I sat facing van Manderpootz in his little inner office. The

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gray metal figure of Isaak was missing, and the table that had held the idealizator was empty.

"Yes," said van Manderpootz, "I've dismantled it. One of van Manderpootz's few mistakes was to leave it around where a pair of incompetents like you and Denise could get to it. It seems that I continually overestimate the intelligence of others. I suppose I tend to judge them by the brain of van Manderpootz."

I said nothing. I was thoroughly disheartened and depressed, and whatever the professor said about my lack of intelligence, I felt it justified.

"Hereafter," resumed van Manderpootz, "I shall credit nobody except myself with intelligence, and will doubtless be much more nearly correct." He waved a hand at Isaak's vacant corner. "Not even the Bacon head," he continued. "I've abandoned that project, because, when you come right down to it, what need has the world of a mechanical brain when it already has that of van Manderpootz?"

"Professor," I burst out suddenly, "why won't you let me see Denise? I've been at the hospital every day, and they let me into her room just once—just once, and that time she went right into a fit of hysterics. Why? Is she—" I gulped.

"She's recovering nicely, Dixon."

"Then why can't I see her?"

"Well," said van Manderpootz placidly, "it's like this. You see, when you rushed into the laboratory there, you made the mistake of pushing your face in front of the barrel. She saw your features right in the midst of all those horrors she had called up. Do you see? From then on your face was associated in her mind with the whole brew in the mirror. She can't even look at you without seeing all of it again."

I gasped. "But she'll get over it, won't she? She'll forget that part of it?"

"The young psychiatrist who attends her—a bright chap, by the way, with a number of my own ideas—believes she'll be quite over it in a couple of months. But personally, Dixon, I don't think she'll ever welcome the sight of your face, though I myself have seen uglier visages somewhere or other."

I IGNORED that. "Lord!" I groaned. "What a mess!"

I rose to depart, and then—then I knew what inspiration means!

"Listen!" I said, spinning back. "Listen, Professor! Why can't you get her back here and let her visualize the ideally beautiful? And then I—I'll stick my face into that!" Enthusiasm grew. "It can't fail!" I cried. "At the worst, it'll cancel that other memory. It's marvelous!"

"But as usual," said van Manderpootz, "a little late."

"Late? Why? You can put up your idealizator again. You'd do that much, wouldn't you?"

"Van Manderpootz," he observed, "is the very soul of generosity. I'd do it gladly, but it's still a little late, Dixon. You see, she married the bright young psychiatrist this noon."

Well, I've a date with Tips Alva tonight, and I'm going to be late for it, just as late as I please. And then I'm going to do nothing but stare at her lips all evening.

Next Issue's HALL OF FAME Selection

THE SPACE DWELLERS, by RAYMOND Z. GALLUN

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Do-Kobo was deliberately toasting his left arm

Son of His Father

By FRANK BELKNAP LONG

When an Earthling Becomes a School Teacher on Io, He Finds His Pupils in a Class by Themselves!

NICHOLAS STANTON felt like an insect caught in a web of ice. The snow was rust-colored, and it came down in slanting sheets, obliterating the trail ahead, and slowing the moto-tumbrel to a crawl. Nine years out of twelve the Ioan tundra was merely bleak and savage, but when Jupiter approached aphelion—

It was so bad that something inside Stanton kept whispering that he was going to wake up sweating every night for a month. Ten minutes after the bitter cold had rendered his heating apparatus useless there were frosty plumes on his helmet and his lips were turning blue.

He could see himself in the drift shield, face pinched behind a pane of quartz two inches thick.

"You ought to have your head examined," he flung at himself. "You're

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just a middle-aged zany with a bad sense of timing. You're just—oh, oh, oh, my stomach!"

Stanton bent double, groaning. He was seriously worried, but it hadn't occurred to him yet that drowsiness couldn't be fought off inside a cold suit for more than ten or twelve minutes. Even when the cramps hit him he was still an optimist.

Stanton had gone to Io City to collect a magneto-stove, and some school supplies which Winslow had ordered earlier in the year. Now he was heading back to the stockade. But between the time when he had piled everything into the tumbrel, and his actual departure he had managed to make a spectacle of himself.

He had purchased six pounds of coarse shag tobacco, a pound of Irish tobacco, a new pipe and a badly needed haircut. He had then visited the Io City Amusement Park and tucked his long legs in a roller coaster. There had been bright lights and gay music in Io City, and the hurdy-gurdy atmosphere had helped him forget that he was supposed to be a dignified, middle-aged school teacher.

A person of some importance, a . . . Oh, heck, why should he kid himself? He was actually an assistant school teacher, despite his graying hairs, and a headmaster's listing in the Educational Register.

He didn't mind playing second fiddle so much. In fact, he had given up a top-flight educational position on Earth because he was a pioneer, and felt that the Ioan kids needed sympathy and understanding. He didn't mind playing second fiddle, but he did object to having his educational theories derided, his teaching methods held up to scorn.

HE WAS painfully discovering that being a Mr. Chips on Io was ten times as difficult as teaching a thousand grade school kids to be good neighbors on Earth. It was so difficult that he had welcomed a chance to get away from the stockade, and forget that he had been commissioned by the Colonial Office to assist Winslow with the native children.

Winslow believed that before young Ioans could be given the advantages of a modern scientific education they had to be taught to behave like human kids.

"Tuck in your elbows, and don't talk so much," he could still hear Winslow saying. "And remember this. When you borrow the other fellow's sled without asking his permission, it's really stealing. Stealing!"

It was barely possible, of course, that Winslow knew what he was doing. Ioans adhered to such a primitive code of ethics that you had to be tough and inflexible to live on the same satellite with them. And perhaps you had to be stern with their kids.

The trouble was—well, the Stanton system of education clashed with the Winslow system right up to the hilt. Ioan youngsters were entirely different from ordinary kids. When they tried *too* hard to repress their natural impulses something went sour inside of them, and they became as glum as parched pelicans decked out in hair shirts.

Although Ioans were just emerging from savagery they had a homely, practical kind of wisdom which it was a crime not to respect. They were about on the Zulu level—had a rude, handicraft culture, and were splendid specimens physically. Why try to force them into a mold? The right way to educate strong-willed barbarian youngsters was cheerily and sympathetically—in slow stages, and with charitable winks.

Eventually they would become good neighbors, because they had what it takes. But meanwhile, why not let them relax and be human, like normal kids on Earth? There was one youngster in particular, a problem child named Do-Kobo whose big eyes haunted Stanton. Kobo seemed to be always appealing to him from the depths of his misery to do something about it.

"Oh, nuts!" he had flung at the sky, and climbed into the tumbrel without noticing how dark it had become.

Still feeling embittered, he had zigzagged down a winding motoway, and headed for the open tundra.

It had begun to snow almost immediately. Thick, swollen flakes which collected on every strut of the sleighlike

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vehicle. Stanton knew that during a bad storm the atmosphere could turn into a rust-hued shroud five miles thick, and he had a vision of himself being stood on his head by converging walls of ice, and squeezed up into the sky until he seemed to be skating on the Little Dipper.

He shut his eyes, and the vision was gone. It was plenty unnerving. Actually the temperature was well above the freezing point of hydrogen, and the atmosphere was merely weeping oxygen crystals tinted red by barium ferrate and preening itself on its toughness.

Stanton's courage had been running high up to the instant when plumes formed on his helmet. But when a heaviness came into his eyelids and he couldn't seem to get enough oxygen it began to ebb a little. Slowly at first, and then more rapidly, and finally in eddies that whirled him about until he found himself staring with convulsed features into the mirrorlike drift shield, seeing a skull where his face should have been.

He had forgotten his educational worries by then, and if it hadn't been for the fact that he was not a drinking man he would have ripped out a flask and made himself roaring drunk.

HE WAS clutching at his stomach and setting his teeth firmly together when a voice whispered close to his earpiece:

"Mr. Stanton, it is I. Wake up, Mr. Stanton."

With an effort Stanton straightened, realizing only dimly that he had passed out for a complete moment, while someone had leaped into the tumbrel beside him and was now busily engaged in lifting off his clogged heating apparatus.

Big ears coated with scarlet snow, wrinkled face set in a toothsome grin, the Ioan lad seemed oblivious to the cold as he unscrewed the Earthling's radiator pack, lifted it from his shoulders, and replaced it with a life-saving spare which he had brought with him from the stockade.

His agitated speech made everything clear as he worked, his furry body coated with oxygen ice.

"Dr. Winslow was much concerned," he said. "He feared you might be in serious trouble. How do you feel now, Mr. Stanton?"

"Swell, Kobo," Stanton groaned. "Just wonderful."

"There is no need to worry now, Mr. Stanton. Heating pack fix everything up fine and dandy."

Stanton just couldn't believe his eyes. Do-Kobo was a native chieftain's son, and the dourest seventeen-year-old ever to perk up big ears at the sound of a dinner bell. He was so glum that Stanton had thought him quite incapable of grinning at anyone, or uttering an amiable word.

Through the thick curtain of snow Stanton could see the tumbrel from which Do-Kobo had descended. It loomed up hazily sixty feet ahead, its forward struts projecting into the storm like the prow of a ship.

Stanton smiled gratefully and patted the youngster's shoulder.

"You're all right, Do-Kobo," he said huskily through his speaking tube. "Serious trouble is putting it mildly. In another moment I should have been beyond help, and—well, perhaps we're both to be congratulated. Straightening out a corpse in a frozen suit is a bit on the backbreaking side."

Do-Kobo was staring at him steadily.

"Mr. Stanton," he said. "There's something I—"

"Yes, Kobo?"

"Mr. Stanton, I have a confession to make. A serious confession. I—I hope I have picked the right time for it. Mr. Stanton, I have at all times a desire to do things which Dr. Winslow would not approve of. But I have also a desire to be a dutiful, loyal pupil. There are times when I am—yes, *torn*, Mr. Stanton. Inwardly torn between conflicting types of conduct."

Stanton's eyes grew moist. "I understand, Kobo. Dr. Winslow is a bit—well, Dr. Winslow is the worrying kind. He worries about all of our—eh—boys, whether they do, or whether they don't. And that makes him seem

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quite stern. But inwardly he is the opposite of stern. Believe me, Kobo, I know."

"But I am facing a problem, Mr. Stanton. It is difficult for me to warm up to Dr. Winslow. It is easy for me to think of you as my teacher and my friend, but there is something foreboding about Dr. Winslow."

"You mean forbidding. Kobo, we're going to have to do something about that. I know just how you feel."

DO-KOBO seemed not to hear him. He was grasping one of the forward struts and leaning out over the tumbrel, his big ears standing up straight. He began suddenly to tremble.

"Mr. Stanton," he muttered, gripping the Earthling's wrist. "I'm afraid we are in for it!"

Before Stanton could reply there was a sudden, whirring sound, and a dozen lopsided black disks filled the air, zooming in all directions simultaneously.

"Duck, Mr. Stanton!" Do-Kobo screeched.

Stanton gasped and threw himself flat down behind the drift shield, his hand darting to his hip-holstered blastick. Do-Kobo crashed down beside him, just as another disk struck the shield a resounding blow, and went shooting off at right angles to the tumbrel. The air was filled with churned-up snow, and flying splinters of glass.

Stanton grasped a side strut, and slowly raised himself, his breath coming in wheezing gasps.

"Don't blast, Mr. Stanton!" Do-Kobo pleaded frantically. "It is my *father*! He is attacking in great force."

Dazedly Stanton stared out through the red curtain of snow. A dozen huge Ioans, their furry bodies bent almost double, were loping toward the tumbrel with boomerangs cradled in their arms.

White-lipped, Stanton pivoted about on his knees. On the lee side of the vehicle a double column of natives were advancing more methodically. Teeth glistening behind drawn lips, a pent-up ferocity in their eyes, they seemed to have forgotten that Earthlings carried blasticks.

"An ambush!" Stanton groaned.

"Don't blast, Mr. Stanton!" There was a desperate urgency in Do-Kobo's voice. "Please—no, no!"

"It's their lives, or ours," Stanton gritted, standing up, and taking deliberate aim. "Keep down, Kobo! Keep out of sight!"

"Father, it is I!" Do-Kobo almost screamed, popping into view by the Earthling's side. "Mr. Stanton is going to blast."

Instantly the column halted. As Stanton stared, a seven-foot native chieftain detached himself from his furry command, and strode savagely forward.

"Father, Mr. Stanton is my teacher and my friend!" Do-Kobo pleaded desperately.

The tall Ioan made a sound which was all bellow and a yard wide. Squaring off eight feet from the tumbrel he transfixed his offspring with a furious stare.

"Nunch nocken!" he stormed. *"Nunch ninch nocken."*

"He says I am no son of his," Do-Kobo groaned. "He has disowned me."

Save for a ceremonial neckband of gleaming cupronickel Chief Dool Tath was as unadorned as a newborn babe. Before Stanton could address him he proceeded to demonstrate that his judgment was in keeping with his appearance. Scowling ferociously, he swung about on his heels and flung his arm out in a gesture of command.

The gesture was infantile because it brought a livid spurt of flame from Stanton's blastick, and a blood-curdling screech from Dool Tath's second in command.

"Look out!" Do-Kobo screamed.

Stanton dropped down just in time to escape having his head torn off by a zooming disk. The confusion which ensued was ghastly, for though startlement had hindered Stanton's aim eight hapless Ioans were smoking lumps of charcoal when the tumbrel started zigzagging across the tundra in a chugging crawl.

THE trail had become a mere shallow trough in the snow, but Stanton kept the vehicle moving by kneeling on the propulsion pedal while he

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blasted to right and left. Resting the weapon on a stern strut he realigned the sights eight times in as many seconds, bringing down a round dozen yapping savages before Dool Tath's demoralized command could converge into a solid phalanx directly in his wake.

Deliberately he spared Do-Kobo's father, cursing himself for a fool as he picked off the pursuing Ioans in columns of six and eight. Although Do-Kobo had been knocked nearly silly by a boomerang that had just missed killing him, he kept trying to raise himself above the struts. Between blastings Stanton had to pivot about, and plead with him to lie flat.

Savagely he continued to blast, a haze of smoke swirling up about him. The steadily vibrating weapon lit up his helmet in flashes and melted the snow on the strut. He realized suddenly that Ioans were being felled by their own weapons circling back. The lopsided disks smote them hip and thigh, cracked their skulls, and stretched them out on their backs.

Even more amazingly Stanton saw a boomerang, hurled by a warrior who had blackened to a crisp, double a living native to his knees, saw another encircle the tumbrel, and crack a furry skull like a mace.

He didn't see the huge snowbank, or suspect that the tumbrel was heading straight into it. Worse, his muscles were knotted up so tight that when the vehicle began to tilt he was unable to bend backward fast enough to keep from being hurled straight over the strut into the snow on his head.

His feet sticking up, he lay groaning and gasping until furry hands fastened on him, and dragged him savagely to his feet. They were all about him in an instant, glaring and screeching, but his worst ordeal was when they disconnected his oxygen tube, lifted off his helmet, and beat him into insensibility with their hard-knuckled fists. . . .

It all seemed like a nightmare from which he was just awakening. They had carried him miles over the snow, and dumped him as though he were something contagious that oughtn't to have been touched.

He had known of course that they were cannibals, but it hadn't occurred to him that they could relish human flesh. The cauldron loomed so close he could smell the heated oil just inside its corrugated metal rim. Under it there was a circle of fire, and smoke was rising in a thin, bluish spiral into the sky.

The natives sat in a semi-circle around that *kilderkin*, their boomerangs wedged between their knees. Rearmost amongst them towered Do-Kobo's father, his long-waisted, furry body as rigid as a beanstalk drained of its sap.

It had stopped snowing and the temperature was now warm and balmy for Io—200 centigrade in the shade. While the pot simmered and the refraction-swollen disk of Jupiter smoldered somberly overhead Do-Kobo rose to unsurpassed heights of eloquence.

The better to make himself understood, he paced about between the cauldron and his father and addressed the seated Ioans in his native tongue.

STANTON knew that Do-Kobo was pleading for his teacher's life. He knew because from time to time Do-Kobo would swing about, and report on his progress in English. Unfortunately Chief Dool Tath understood English although he could not speak it, and the fury which flamed in his eyes said as plain as words that his offspring was wasting his breath.

"It is a problem, Mr. Stanton," Do-Kobo exclaimed despairingly. "My father asks what you have taught me. It is not easy to explain."

Stanton could only groan and avert his gaze. Not easy was putting it mildly. How could the Ioans be made to realize that their moral code was primitive when they were obviously feeling noble for having resisted an impulse to eat him uncooked?

Stanton had never felt so wretched and helpless. Just staring at the cauldron was pure torment, but what stabbed him to the quick was the way the poor kid kept appealing to him for moral support.

"Mr. Stanton, my father says he has sired a monster."

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Stanton raised tormented eyes to Do-Kobo's despair-contorted face. "Kobo," he blurted out desperately, "show him how we Earthlings treat poor devils who are weaker than ourselves—the helpless, the crippled, the incurably sick. Show him what mercy means. Act it out in pantomime."

Into Do-Kobo's face there came a look of instant understanding. Swinging about, he swept the row of seated Ioans with his gaze. Most of the natives were heavily furred and robust of sinew, but there was one scrawny little fellow down in front who seemed to be out of place in that gathering of warriors. He had lost his boomerang, and his shoulders drooped as though life had become for him an intolerable nightmare from which he could not hope to escape.

Briefly Do-Kobo pleaded for forbearance for what he was about to do, gesturing vehemently to give weight to his words.

"Ninch tunal wrinch," he pleaded. *"Nunckle nockin ninch."*

Though Chief Dool Tath's features remained impassive his chin moved the barest fraction of an inch.

It was enough for Do-Kobo. Swiftly he approached the weakling Ioan, and drove a hard-knuckled fist into the pit of his stomach, putting all his strength into the blow.

With a screech the scrawny one bent double, his face contorted with pain.

Instantly Chief Dool Tath sprang up. There was no condemnation in his eyes, only a dawning wonder tinged with parental pride.

"Ninch nul nockin," he gurgled. *"Nunkle nunch."*

Stanton's jaw jigged downward. With a subtlety undreamed of Do-Kobo had seemingly fathomed the kind of behavior which was expected of a chieftain's son, and had acted accordingly. All of the natives were now getting to their feet, their expressions plainly indicating that Do-Kobo had saved Stanton's life. With a flash of insight bordering on genius Do-Kobo had clearly demonstrated that he was being tutored by a man of great wisdom and strength.

Dool Tath had ceased to glower, and for a moment it seemed as though he were about to clasp his trembling son to his furry breast. And then—Do-Kobo tore it. He screwed up his face, and shook his head.

"That is not what I have been taught to do," he said. "This is what I have been taught."

THE weakling Ioan was still lying doubled up in the snow, his wrinkled features twitching with pain and humiliation. Before Stanton could scream a warning Do-Kobo dropped down beside him, raised him up, and gave him a friendly pat on the shoulder. He massaged his furry stomach. He took a boomerang away from one of the stunned warriors, and wedged it between beanstalk knees that had ceased to quake.

A look of joy and gratitude came into the weakling Ioan's eyes. To have been so favored by a chieftain's son could only mean that he was a very exceptional fellow.

His scrawny chest seemed to expand. He sat straight and still staring up at his benefactor with moist, adoring eyes.

Do-Kobo had arisen and was facing his father, his face wreathed in smiles.

"You see, Father," he said. "He has now confidence in himself. He will fight like seven devils. You see what kindness and sympathy will do?"

Apparently Chief Dool Tath did not see at all. Into his face there came a look of ferocious disillusionment which boded ill for Do-Kobo.

"Nunkle namel nonth!" he bellowed. *"Nonth namel nuch nunckle ninth. Ah, nonth, nunckle nunch NUNCH NINTH NAMAL!!!?"*

Do-Kobo seemed to wilt. Turning to Stanton, he exclaimed, desperately:

"Father asks why when my enemy is weak I should make him strong. Why, when my enemy is defeated, I should give him a weapon. Why, when I have brought him low I should raise him up, arm and comfort him, and give him confidence in himself."

"But he is not your enemy," Stanton urged frantically. 'Make that plain to him, Kobo. Do something! Act it out!"

Do-Kobo's face bore a striking re-

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semblance to that of a martyred saint.

"It would be useless, Mr. Stanton. I told Father he was my enemy. Father is a warrior, a man of action. In such matters he is not subtle. I tried to make it simple for him."

"You mean utterly incomprehensible," Stanton groaned. "He might feel pity for a weak friend, but never for an enemy. A native must kill or be killed. Kobo, show them that you can act like a native, too."

Kobo drew himself up.

"Mr. Stanton, you have taught me not to act like a native. You have pointed out that it is all right for my father to act like a native, because he is a warrior on a hostile planet. But we are conquering the wilderness now, and will soon enjoy an economy of abundance. You have taught us to be good neighbors on a friendly planet. I cannot act like a native except—except to illustrate a point, as I have just done."

Stanton had arisen and was pressing his speaking tube to the young Ioan's quivering right ear.

"Kobo, listen to me. When it's 'be tough, or be eaten,' you've got to fight fire with fire. You've got to pretend you're a native too, right down to your soles."

Do-Kobo shook his head. "No, Mr. Stanton. It would not be right."

"Kobo, tackle one of the strong warriors. Hit him on the jaw, and double him up. A chieftain's son is taboo—he'll have to like it."

A fierce struggle semed to be going on inside Do-Kobo. His eyes were deep pools of torment, his lips snagged by his teeth. Chief Dool Tath had approached the cauldron and was gazing somberly down at the bubbling oil. Even more chilling than his savage rantings had been was the greedy hunger which was beginning to show into his features.

THE warriors had formed into a tight circle and were pressing closer to the fire, Jupiterlight glittering on their furry ears. Their expressions were wolfish now, utterly.

Goaded to desperation by Do-Kobo's fanatical scruples Stanton blurted out:

"It is no disgrace to act like a native when you are a native! Don't you see, Kobo? Your environment has been changed. You're temporarily a native again."

Do-Kobo raised to Stanton's face eyes that stabbed him to the quick.

"Mr. Stanton, they'll truss me up and beat me with a wet thong until my belly swells, but they won't eat me. I'm a chieftain's son, and they won't dare. But of course they will eat you. Mr. Stanton. Do—do you fear death?"

"No man likes to go into the darkness, Kobo," Stanton groaned, and could have bitten his tongue out. He had forgotten that fear of death was something which no Ioan could understand.

"My teacher and my friend fears death," Do-Kobo said gloomily. "Do-Kobo does not fear pain. It is well. I have thought of something."

Inexpressibly baleful loomed the splotched and swollen disk of Jupiter as Do-Kobo turned and strode swiftly toward the fire, his lips moving soundlessly as though in prayer.

The gods that he worshiped were not Stanton's, but Stanton felt only awe as he stared. He suspected that Do-Kobo was about to go to unbelievable lengths to rock his father back on his heels. There was no telling what he might do. There was no guessing what went on in the unfathomable minds of Ioans. There was no trying to stop them when they made up their minds.

Was Do-Kobo about to sink back into the fens of savagery from which he had climbed to an ethical height which permitted of no compromise, and was therefore illogical, insane? Was he . . . Stanton's spine froze, and his oxygen tube seemed to clog.

A sickening odor as of burning fur assailed his nostrils, but it wasn't the odor which drove the blood in torrents from his heart. Do-Kobo had fallen to his knees before the cauldron, and was deliberately and methodically toasting his left arm—first on one side, then on the other.

He was holding the limb between the cauldron and the fire, an expression on his face that made Stanton want to scream. The Earthling's instant realization that Ioans could not survive severe burns increased his horror a

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hundredfold. The dryness and sluggish circulation which enabled them to withstand temperatures below the freezing point of oxygen had the exact opposite effect when they exposed themselves to intense heat.

There was scarcely any water in their tissues, and their exterior skins were more inflammable than the long fur which covered them.

Stanton had a horrible moment of trying to get instantly to Do-Kobo's side. Another horrible moment of butting Chief Dool Tath's stomach in while he dragged the chief's protesting offspring with great vigor from the coals. Blind rage and sick revulsion and despair and pity had all converged to turn Stanton into a human battering ram.

Through his quartz-piece he saw Dool Tath crumple to his knees, try to rise and fall back groaning. He saw the circle of warriors surge closer, their eyes stabbing to right and left, their teeth showing in savage grins. He felt Do-Kobo go limp in his clasp, felt a sickness tighten his stomach and surge up through him until he reeled on his feet.

REELED, and was suddenly no longer on his feet, but flat on his back on the ground. The blackness which swept over him was filled with an odor as of burning fur, and for a while a big-eared Ioan kid with a charred right arm kept looking down at him as though from an immense height.

"Oh!" he groaned, and rolled over on his side.

Seemingly the darkness became absolute for a split second. Then he heard a voice plead:

"Mr. Stanton, it is I. Wake up, Mr. Stanton."

He was aware of rolling back out of an ebon void into the light.

"Mr. Stanton, we are almost at the stockade and Dr. Winslow is using a heliograph to signal us."

Dazedly Stanton sat up, and stared about him. On both sides of him were gleaming red snowbanks and there was a jogging surface under him, and perched on a vibrating side strut staring down at him was Do-Kobo. The Ioan kid was holding on to the strut with one furry hand and using the other to pluck at the Earthling's shoulder.

"Mr. Stanton, there is no need to worry now. Father says he will send all of his sons to the stockade and you will teach them to scorn and defy *Il Flamil*, even as did I."

"The God of Fire!" Stanton gasped. "Kobo, I thought—your arm—"

"*Il Flamil* seems terrible to father," Do-Kobo pointed out exultantly. "A most terrible god. Father is once more proud of me. I am once more the son of his loins."

Stanton couldn't believe his eyes. Both of Do-Kobo's arms were covered with smooth white fur which wasn't even singed. He gulped, and stared up at the great, orange-red disk of Jupiter, as though half-expecting it to wink at him, and go careening down the sky. But unblinkingly Jupiter returned his stare, and the stars on both sides of it did not turn into long-tailed comets and super-novae with fiery manes.

It could only mean that he wasn't dreaming, and he wasn't mad. Do-Kobo was real, Do-Kobo was earnest, and—

"Kobo, how did you—Kobo, you held your arm right over—"

"I know, Mr. Stanton. Right over the coals. But you are forgetting that Dr. Winslow has given me instruction in chemistry and physics. He has given me also instruction in history. A modern, scientific education, Mr. Stanton."

"In history!" Stanton gasped. "But how could history—"

"From history I got the idea, Mr. Stanton. There was an ancient Roman hero who plunged his bare arm, Mr. Stanton, into a living fire to confound and confuse his enemies." Do-Kobo grinned. "He did that to demonstrate his stoicism and courage, Mr. Stanton. Until his arm was consumed he held it in the flame, and walked forth a free man."

"But your arm was not consumed!" Stanton almost shouted. "How in time did you—"

"It was quite simple, Mr. Stanton. The temperature dropped to the freezing point of oxygen, or nearly so, hovering now a little above, now a little

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below. Under such conditions heat is developed so diffusely it is dissipated to the surroundings almost as quickly as it is generated. There was barely enough unfrozen oxygen in the atmosphere to produce combustion, Mr. Stanton."

STANTON shook his puzzled head. "But the kettle heated up," the Earthling flung at him. "And the flame looked bright and sizzling."

"You were deceived by appearances, Mr. Stanton. The flame was bright, but it was not sizzling. Flames result from the occurrence of reactions at the boundaries between gases. The brightness of flames is caused by the presence of solid particles in the atmosphere. These are raised to incandescence by thermal reactions. It had stopped snowing, but the atmosphere was a mass of unstable gases, and was impregnated by billions of particles.

"Under such conditions you get a large, bright flame of extremely low temperature, Mr. Stanton. A sluggish flame, with hardly enough oxygen to feed on, but bright notwithstanding. The pot boiled because—well, it had been stewing there a long time, Mr. Stanton. In a metal container you can boil oil with a feeble flame, if you've got a lot of time to waste, Mr. Stanton."

"But I could smell burning fur!" Stanton gasped.

"All flames burn, Mr. Stanton. But my fur was only singed, and the scorched hairs I have pulled out. You are forgetting that my arm was wet and dripping. For a full half-minute, Mr. Stanton, I knew I could pull a fast one."

"And you thought I would drag you off before . . . Kobo, that was deceitful! A fast one! Boy, I'll say it was fast."

Into Do-Kobo's face there came a look of feigned consternation.

"Mr. Stanton, I had forgotten. Deceit is a wickedness. Oh, I do not deserve to live, Mr. Stanton. I am steeped in iniquity."

Stanton's frown then dissolved into a grin.

"Aw, Kobo, cut it out," he said. "Discretion is the better part of valor, in any man's language. And don't let anyone tell you it didn't take pluck to put an arm as combustible as yours into *any* flame, for as long as three seconds."

He nodded approvingly.

"Moreover, Kobo, you've given me a swell idea. I'm going to praise you in glowing terms to Dr. Winslow. I'm going to hold you up as an example. You've given me a fine talking point. You conducted yourself magnificently. You were courageous, but discreet. You used your head. We're going to change our style of teaching at the stockade, Kobo. I shall be able now to convince Winslow that you kids rise to unsuspected heights when you're put on your mettle."

"You mean—"

"Kobo, Winslow is going to see things my way. The stockade is going to have a new birth of freedom."

Do-Kobo's eyes began to glow.

"Gee, thanks, Mr. Stanton. If I may be permitted to lapse into slang, you're a regular guy and a swell egg, Mr. Stanton."

"Lapse all you want to, Kobo," Stanton chuckled, thumping him on the shoulder. "But from now on 'Mr. Stanton' is out. Just call me Nicky."

"Aw, gee. Well—Nicky then. Gee —*Nicky!*"

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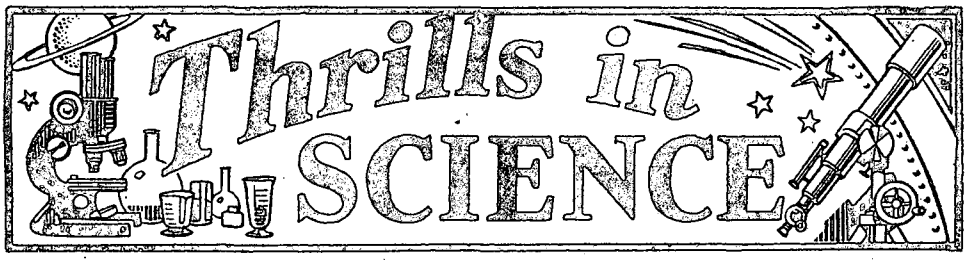

Thumbnail Sketches of Great Men and Achievements

By OSCAR J. FRIEND

KEEP 'EM ROLLING

The Elusive Secret of Synthetic Rubber

IT WAS a quite ordinary commercial laboratory in Kansas City, Missouri, with the usual assortment of miscellaneous equipment, dust and bad smells.

Practically unknown, even in his home town, the proprietor worked away at the various jobs he received. Unknown, that is, in a famous sense. For who cared anything about the dreary and routine processes followed by an analytical chemist to find out if there was a bit of arsenic in this compound, or whether that preparation was a good meat preservative, or what was the exact composition of

DR. JOSEPH C. PATRICK

such and such a fuel oil? Chemists who analyzed things for hire came a dime a dozen in the nineteen twenties.

But Dr. Joseph C. Patrick was not an ordinary laboratory chemist. In his late thirties, he was rather short of stature, baldish and highly energetic.

Somewhere he had read that stuff about the future frontiers being in the science laboratories, and he believed it. So, along with the routine tasks that he did for people and corporations who required chemical analysis, he carried on sidelines of research in any problem which arose to interest him.

Just now he was doing research work with fuel oils. He became particularly interested in ethylene gas, a possibly valuable hydrocarbon which was now merely a waste by-product in oil-cracking plants. Refiners only burned it under their stills. If only somebody could find a use for it, perhaps people would buy it.

Maybe it could be incorporated into some compound to make, say, an antifreeze solution for car radiators. Fortunately for us today, Dr. Patrick didn't get led off on the lead tetraethyl angle for antiknock fluid to be added to gasoline.

He was thinking of antifreeze this particular afternoon as he mixed some ethylene dichloride and sodium polysulphide in a beaker and put the concoction under a mechanical stirrer and then went on about his paying business.

Unlike Goodyear, he did not put a mixture of crude rubber and sulphur on a stove and forget about it and then accidentally discover that he had found a way to vulcanize rubber. But the results obtained were practically the same! At least, of such kindred importance as to be worthy of drawing this parallel.

During the course of the afternoon Dr. Patrick—mind you now, in search of an antifreeze solution—stopped occasionally to examine the little private experiment he had in the works under the mixer. To his amazement it was beginning to thicken. No good for antifreeze. Shaking his head in disgust, he nevertheless left the mixture under the machine for a time. Just another experiment gone haywire.

That night before leaving the laboratory, he set the mess aside, leaving the clean-up for the next morning. But there was no clean-up next day. When he examined the beaker the following morning he found a gummy slab of solid substance on the bottom of the beaker.

Curious now, he fished the stuff out and washed it with water. He found the stuff to be spongy—rubbery! Queer sort of coagulation in a chemical lab where sirupy messes are common.

Unaware that he was trembling on the brink of a great discovery, yet quite cognizant that he was face to face with the unusual, Dr. Patrick put the amber-colored wad of stuff aside. He did not throw it out. He would wait to see what a little time did to it.

After several days he noted that the amber

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stuff had not changed. Now actively curious, he subjected it to strong sunlight. He sliced off sections and treated them with various solvents. And the stuff stood up.

Dr. Patrick rubbed his chin and then removed his glasses and polished them thoughtfully. Things were really getting hot. He knew quite a bit about the history of synthetic rubber research, and he had no intention of going off the deep end like a crackpot inventor who had stirred up a freakish compound in the bath-tub.

It was at this juncture that he had a new customer. The newcomer was a vigorous and husky gentleman who introduced himself:

"Dr. Patrick, my name is Bevis Longstreth. I own some salt mines here in Kansas, and I am about to go out of business since the meat packers have opened salt mines of their own and no longer buy my product. I've got a problem for you. What the dickens can I do with salt mines? Can you get any chemicals out of them? Anything besides salt?"

"Well," replied Dr. Patrick reflectively—sympathetically, "if you have cheap power you can break down salt into chlorine and caustic soda."

"That's out," said Longstreth grimly. "No cheap power. What else?"

"You might combine salt with hickory smoke," went on Patrick dubiously, "and make a compound to rub on meat to cure it without having to use a smokehouse. But I'm not sure—"

Longstreth was a man who could make quick decisions.

"That's it," he declared promptly. "I'm hiring you. Let's get to work on it."

The upshot was that a smoke-salt was developed that was moderately successful. But the most important result was that Dr. Patrick took Bevis Longstreth into his confidence on the wad of synthetic rubber he had accidentally discovered. Longstreth knew certain rubber manufacturers. He went to see Seiberling with some samples of the stuff.

Seiberling examined Patrick's product and suggested that Longstreth hire a rubber chemist to go to work on it. He *might* have an item worthy of further research. The main trouble with the new synthetic was that, while it had a number of qualities superior to natural rubber, it couldn't stand extreme temperatures. At zero it would crack; at the boiling point of water—212 degrees—it became a gooey mass.

Nevertheless, Longstreth sold out his salt mines and Dr. Patrick sold his commercial laboratory, and the pair of now firm friends set themselves up in the business of synthetic rubber making at a cost of about fifty cents per pound.

Natural rubber was then selling at twenty cents per pound and was destined to do a nose-dive to three cents. But the two partners had one distinct advantage. Their synthetic rubber could be used for purposes for which natural rubber was not suitable—such as making hoses for gas pumps, special gaskets, rubber paint, etc.

They named their synthetic "thiokol" and it was readily absorbed into industry.

Then came Pearl Harbor and the subsequent loss of sources of natural rubber. Now, if ever, the United States needed a synthetic rubber which would replace the natural product. Already of national note, Dr. Patrick went back to his test tubes to do further research on Thiokol. The result now was Thiokol Type N, a compound made of salt, sulphur and ethylene gas, not a perfect rubber, but one that would stand a certain amount of abrasive wear.

The Baruch Committee studied the product and recommended construction of plants to produce 60,000 tons of Thiokol annually—or enough to retread some 24,000,000 tires which will then be good for an additional five to ten thousand miles of wear. At this moment a large chemical plant in New Jersey has been converted to produce 24,000 tons of the total recommended and plans are under way to create other plants to produce the remainder.

Mass production of the new rubber should bring the cost down about half—or twenty-five cents per pound, and official word has already gone out that motor cars in need of new tires will be allowed to have recapping done without binding restriction in 1943.

Thus, while Thiokol goes to war as paint, gas tank linings, gaskets, insulation and a thousand other purposes, Thiokol N hits the highways to keep the commerce of this great nation rolling without coming to a breakdown. And all because Joseph C. Patrick was trying to find an antifreeze solution back in 1929. Instead, Dr. Patrick found a way to keep the entire motor traffic from freezing.

SO MUCH FROM SO LITTLE

The Amazing Career of George Washington Carver

THERE is a certain glass case today in the museum of the Tuskegee Institute at Tuskegee, Alabama, which contains the materials with which that frail young man with the quizzically friendly eyes made his first laboratory. They consist of, namely, an old barn lantern, a heavy kitchen cup, a piece of flat iron, a few old bottles with the tops cut off, and an ink bottle with a homemade cap and wick for a spirit lamp. He was about thirty-two years old that day in 1896 when he assembled this pitiful handful of crude equipment with which he was to lay the foundation for literally hundreds of developments in the realm of chemurgy. But this was wealth beyond the dreams of avarice because the man himself brought with him the great gift of intelligence and education.

You see, in the very beginning, this man hadn't even had a name. His parents, Negro slaves, christened him George Washington when he was born on that farm near Diamond Grove, Missouri, in 1864. Then the parents were carried off by slave raiders, and this left the baby George with absolutely nothing.

A white planter by the name of Moses Carver took the child, gave him his own name, and raised him. Only the orphaned son of black slaves, frail in health and body, what could possibly be in store for him? But a

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strange flame glowed within the heart of George Washington Carver. He hungered for information—for education. He wanted to do things with his mind.

Moses Carver was not a rich man and early George Washington Carver saw the evidences of poor farming around him, of both white and Negro toilers and tillers of the soil. It didn't take the aftermath of the Civil War to show him the stranglehold that King Cotton had on the South, the thralldom in which it held poor white, rich white and black alike.

Himself unable to do the heavy work of a laboring hand, the frail Negro lad realized that he must do the major part of his work with his brain. This he set about doing at the very outset. With the kindly assistance and permission of his employer he was able

DR. GEORGE WASHINGTON CARVER

to go to common school and gain the rudiments of education.

Then he found himself on his own. He slept in haylofts, did chores of all sorts for his food and did washings to earn the money to see him through high school. He established a small laundry in order to put himself through Simpson College at Indianola, Iowa. And still he was not satisfied. He housecleaned and washed and scrubbed his way through Iowa State College.

He was rewarded with an offer from the Tuskegee Institute to come and establish an agricultural laboratory there. Thus, in 1896 Dr. George Washington Carver arrived at Tuskegee to find that the economic emancipation of the Negro farmer was still just a dream. It needed a prophet, a leader, a man of science and education. And that was what Dr. Carver had to offer. That was all he had to offer—his genius at working with soil and plants.

"There isn't much to work with here," they told him at Tuskegee apologetically, "and there isn't much money."

He could see that. But he smiled that gentle smile of his and replied: "We will succeed. You start with what you have wherever you are and make something of it. Never be satisfied."

Dr. Carver never was satisfied. He surmounted all obstacles with three magical ingredients—time, patience and work. After he assembled his first crude equipment he surveyed his "experimental farm." Sixteen acres of sandy, eroded and impoverished land.

He began by sending his students into the swamps and woods with pails and baskets to bring back rich black soil and leaf mold to cover the worthless acreage. Only by dint of painstaking hand labor and the passage of time did Dr. Carver work that ground into shape so he could display the science he had learned the hard way, so he could experiment with growing things, so he could develop the amazing knowledge which grew fallow in his own brain, so he could pursue his work with the soil that he loved.

Dr. Carver has been called the first and greatest chemurgist. That this is no idle tribute is evident in the advances he made with the peanut industry alone. He alone is responsible for the development of peanuts into a $200,000,000 annual industry. He it was who brought cotton up to the one-bale-per-acre status. He it was who showed how to grow, not one but two, sweet potato crops per year.

He has written numerous books on chemurgy, from "43 Ways to Save the Wild Plum Crop" to "105 Different Ways to Prepare the Peanut for the Table."

In 1939 the Theodore Roosevelt Medal was presented to him as "a liberator to men of the white race as well as the black."

And now that death has come to this miracle worker of growing things at the age of eighty years, this man who began with nothing and developed so much of good for all of mankind, this man who really fathered the science of chemurgy, nothing can make a greater tribute for him than the quotation from Genesis published in the frontispiece of his own Victory Garden bulletin in March, 1942:

"Behold I have given you every herb . . . to you it shall be for meat."

FLIGHT WITHOUT WINGS

The First Three Air Passengers Rode Free!

TWO boys lay on a grassy hillside one lazy and lovely afternoon in sunny France and stared up at the fleecy clouds in the sky. Everything was idyllic and peaceful. There were no droning airplanes to fly overhead and drop missiles of death in the form of exploding bombs or to swoop down and strafe the ground with vicious machine-gun fire. For there were no airplanes to fly. It was the year 1760, and Joseph and Jacques Montgolfier had heard of nothing that could really fly except a bird.

"Of course, there was the Greek fable of Icarus," murmured Joseph, the elder brother, dreamily. "He flew."

"Yes, but that was just a story," snorted Jacques. "People don't fly."

"No," admitted Joseph slowly, "they don't.

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But that doesn't mean they may not—some day. There was that Italian artist, Cellini, who drew plans for wings to be strapped onto a man two hundred years ago."

"Did he, Joey?" asked Jacques eagerly, sitting up and looking interested. "But how would a man fly? How do you know there's air to breathe 'way up there?"

"Birds do it," pointed out Joseph.

Jacques looked again at the fleecy clouds. "Joey, what keeps those clouds up?" he asked.

"I don't know," admitted his brother soberly. "I guess they must be lighter than air."

"If we could fill ourselves with a lot of cloud maybe we could float up there in the sky," murmured the younger boy.

Joseph looked startled for a moment at this suggestion and then he laughed. "You have the quaintest ideas, Jacky," he said. "We are too heavy. But, do you know, if we could fill a large, light bag with vapour of the nature of a cloud maybe it would rise in the air."

The sun set and the afternoon ended, as did so many other afternoons in their lives, but somehow Joseph Montgolfier didn't forget this idle chatter he had exchanged with his younger brother. Strangely enough, neither did Jacques.

It was a sort of shock to the brothers when, grown to manhood, they made this discovery. It set them thinking quite seriously about the idea of man-flight. Any vagrant thought which could linger so long in two separate brains must have something of merit in it.

The result was that these two men began a series of experiments. Toward the end of 1782 they found that if they used bags which were light enough, they could inflate them with smoke from a fire placed beneath the downward mouths of the bags and that either the smoke or some vapor from the fire would cause the bags to ascend.

The brothers Montgolfier did not realize until later that the ascending power was due to the lightness of the heated air compared to an equal volume of air at ordinary temperatures. Neither were they then aware of Henry Cavendish's discovery a few years previous that hydrogen gas was at least seven times lighter than ordinary air. But they did know that smoke-filled bags would ascend like the imprisoned clouds they had day-dreamed about as lads, even though they cooled and descended quickly.

Highly elated over their successful experiments, the two brothers built larger and larger bags until on June 5, 1783, they had made a balloon of linen that was 105 feet in circumference. In the presence of numerous spectators gathered at Annonay, a town about forty miles from Lyons, they inflated the cloth bag over a fire of chopped bundles of straw. Upon release the bag rose and traveled through the air for ten minutes, coming to earth more than a mile and a half away.

This public demonstration did it. Jacques turned to Joseph, a great light shining in his eyes.

"Joey, if only there were some way of keeping the heat in the bag longer, or giving it greater lifting power, maybe our balloon would carry living passengers aloft."

"The man's mad!" cried several spectators. "Nobody could live through such an experience, even if they came back to earth safely."

But the thought had been voiced, just as a vagrant thought had been voiced years before, and Joseph Montgolfier did not forget. Meanwhile others tried out the balloon experiment, and the use of hydrogen was employed.

The two brothers set about the building of the biggest balloon yet to be made. The bag was of silk this time and was varnished with a solution of elastic gum to make it airtight. Arrangements were made to secure at least three passengers for the first trial trip in a free, hydrogen-filled balloon.

Speculation was rife throughout the country and much protest arose against the carrying of passengers on such a foolhardy experiment. Nevertheless, on September 19, 1783, the brothers Montgolfier repeated their public balloon ascension at Versailles in the presence of the king of France and an enormous crowd of excited spectators.

The inflation was begun at one o'clock and was completed in eleven minutes. Before the murmuring protests could be transmitted into action, the three passengers were hastily placed in the carrying cage below the balloon. As the crowd roared and the rather frightened three passengers looked down, the balloon soared majestically to the height of about 1500 feet and traveled slowly on the breeze for a distance of two miles when, after an interval of eight minutes, it descended in the wood of Vaucresson.

Madly the crowd had pursued the balloon afoot, the two Montgolfier brothers in the van and cringing under the threatening remarks hurled at them by the more conservative of the spectators. What would be their fate if anything fatal had happened to the first passengers ever to make an aerial flight without wings?

"But birds can do it," repeated Joseph grimly to himself. "And birds *do* breathe! Surely nothing could happen to anybody less than half a mile up in the sky. Why, many mountains are much higher than that, and people and goats live on them!"

But Joseph Montgolfier found his alarms needless. When he reached the descended balloon he found all three passengers safe and unharmed by their experience.

The assembling crowd cheered happily—such is the variable nature of a crowd—as Montgolfier released the first three passengers to take a trip aloft—a rooster, a duck, and a sheep!

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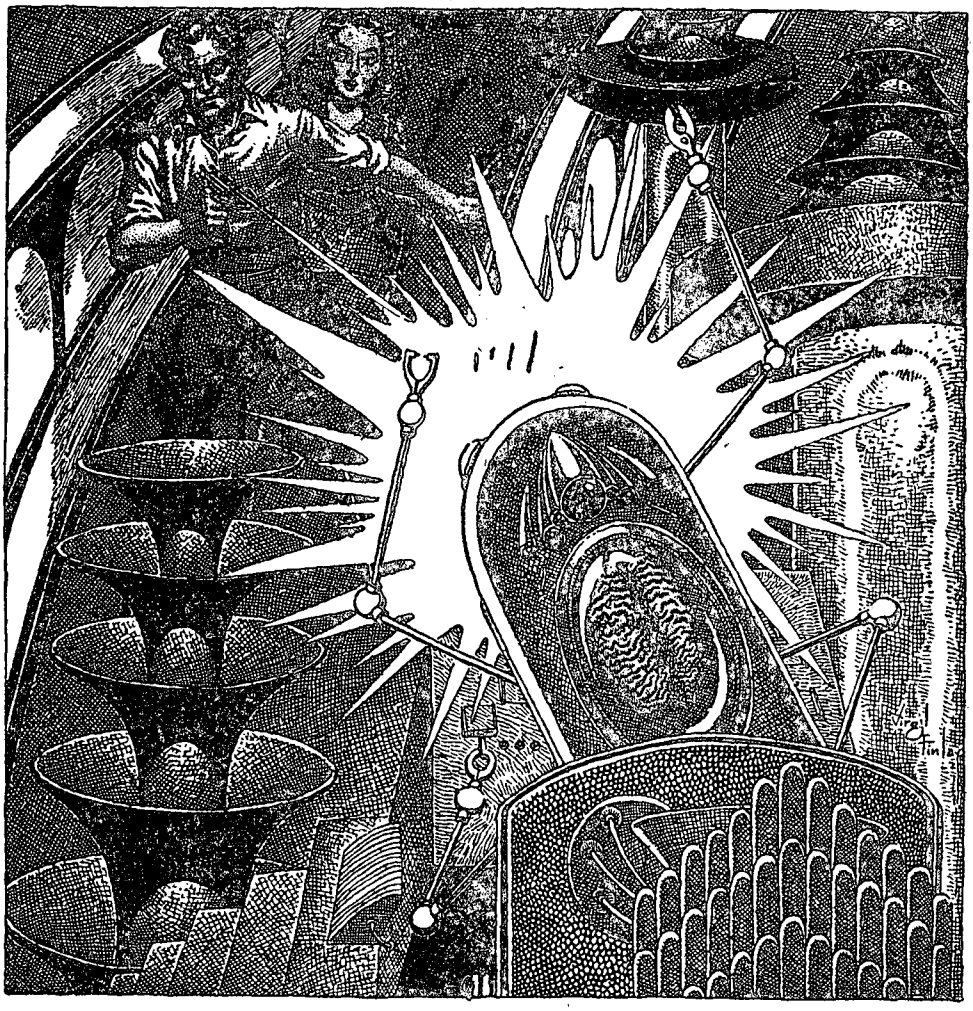

Norvell fired at the robot-brain with his neutron gun

HELL-STUFF FOR PLANET X

By RAYMOND Z. GALLUN

Like a Time-Bomb in Space, Asteroid QM-1 Hurtled Through the Heavens, on a Mission of Incalculable Doom!

"GOOD glory, Frank! You look as though somebody promised you honey and gave you hornets! What have you been fighting with? There aren't any wildcats here on Asteroid QM-one. And what have you got bundled under your arm? . . . Oooh! The thing's savage!"

Arla Manly, trim brunette secretary

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for "Big Jack" Leland, boss of Leland Spaceship Manufacturers, stared at Frank Norvell, who had burst glowering into the little office shanty. What her senses told her, made her forget to be cool and businesslike. Her dark eyes wide, she backed away to a perhaps slightly safer position behind her desk.

Frank Norvell leered past a nasty welt on his cheek and a bloody cut under one eye. Though he was not massive and bullish in build, his feet were spread bullishly apart. His shirt and his once-neat engineer's breeches showed evidence of wear and tear. His stiff hair was singed down the middle, as if it had been parted with a red-hot poker.

And in a clutch like grim death, he gripped something against the side of his body with one tautened forearm. The object was muffled and wrapped in what was evidently the tattered remnants of his coat.

The thing's outline was rigid and cylindrical; but in spite of the padding, blindfolding effect of the coat, the partly masked monster still acted very much alive.

It squirmed, and it tinkled like chains. It uttered weird hoots and shrieks, and strange syllables that sounded like a human voice cursing villainously in some unearthly tongue. Even now, it was almost getting the better of Frank Norvell.

"Stop asking questions now, woman!" he snapped at Arla. It was certainly infrequent that he was ever irritated with her. "Dump those papers out of that steel packing box and bring it here—quick! I can't hold onto this devil from hades all day. And call the Chief!"

ARLA complied as quickly as she could. Norvell deposited his malevolent burden inside the stout metal box without bothering to retrieve his coat. He slammed the lid and planted himself firmly and desperately on top, so that the crescendoing commotion within could not escape and tear the office shanty apart.

"What's all this? What happened?" Big Jack Leland growled as he raced into the room from the rear storage lean-to.

He was designed something like a folding yardstick—tall and thin, and slightly bent, as if on hinges. His jovial red face, under his thatch of stringy white hair, was redder than usual now with consternation.

Behind him slouched his plump nephew, Ames Leland, his fat fists thrust into the pockets of his checkered sports coat. A neutron-blast gun, which he toyed with eternally, dangled in the crook of his arm. He bragged frequently about his hunting exploits on half a dozen worlds.

"Wel-l-l-l!" he drawled. "'Little Boy Blue' Frank Norvell seems to have brought something back alive! How very interesting!"

"Shut up, Ames!" Big Jack Leland growled. "Now, Norvell, answer my questions! Just what have you got in that box?"

Norvell began to talk, pronouncing his words slowly, to the accompaniment of the thumping and howling and general uproar that issued from the stout container on which he was seated.

"I can't open the lid and show you now, Chief," he said with a tantalizing grin. "You can understand why, I guess. Anyhow, I might as well start from the beginning."

He looked out of the window almost sadly at the forest of moss-trees there; at the little brook, the plain, the rows of parked space freighters—all the evidences of general activity connected with the construction of a new colonial enterprise on a new world.

Hundreds of men were working there on the plain. Red-painted girders, skeletons of buildings, were already rearing against the frosty purple sky. The horizon behind was fantastically abrupt. The wooded hills had a curiously regular form, betraying the fact that they were the graves of ancient structures and machines, decayed to rust and ruins, and all but obliterated for millions of years.

"You've heard me say before, Chief, that there's something really queer about this place," Norvell began. "Asteroid QM-one, they call it. That shouldn't be just a classification sym-

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bol. The 'QM' should stand for 'Question Mark.'

"I'm not just referring to the existence of ruins, obviously of Mercurian origin, here. There are ancient remains, left by scientifically advanced but extinct peoples, on Mars too—and Earthmen get along well enough there. . . ."

"Oh! Now you start that again, Norvell!" Big Jack Leland complained. "You're going to say that there's hidden danger on QM-one—and that I shouldn't continue building my new spaceship factory here, until we waste six months or so investigating everything 'thoroughly'!

"Bunk, Norvell! I don't care what you've got in that box! QM-one is a perfect site for my new plant. It's the only asteroid with an atmosphere of its own, capable of supporting life! There are plenty of meteoric metals, waiting to be mined, directly beneath the surface soil.

"Workers and their families will like it here! And what if there are a few wild animals, or something? We've got the best weapons in the Solar System—ancient or modern!"

"I don't feel so safe here now!" Arla Manly commented.

She cast a guarded glance at the steel packing case on which Frank Norvell was perched, from which issued a fresh torrent of thumps and angry screechings.

LELAND'S nephew smiled a smug, self-satisfied smile in Norvell's direction.

"Jittery people should stay on Earth," he drawled pointedly. "But you're not really the jittery type, Arla. You shouldn't associate with pint-sized engineers with wild imaginations."

"Quiet!" Big Jack Leland ordered angrily. "Now what else have you got to say, Norvell?"

"Several things," Norvell responded. "Excuse me if I repeat from previous discussions. Yeah—QM-one has an atmosphere. That's a fact that makes it different from all other asteroids which, with this one exception, are universally airless.

"QM-one has an atmosphere because it has a gravity sufficiently strong to confine gases to its surface. About one-third the gravity of Earth. No other asteroid is massive enough to have anywhere near that much attractive force.

"So, again, QM-one is unique. Moreover, it is a perfect sphere, like a true world, instead of being just a jagged chunk of rock. But curiously, it is only twenty-five miles in diameter. Many other asteroids have a much larger *bulk*. But when you think of that comparatively tremendous gravity, remember that gravity depends on mass and density.

"The inner core of QM-one must be almost pure star metal—neutronium—inconceivably heavy!"

Norvell paused for a moment.

"All that I've just said," he continued, "proves that QM-one isn't a true asteroid at all. It must have an origin entirely different from the others. It's something special—unnatural. It's even way out here toward Jupiter, instead of being near the center of this belt of shattered fragments.

"Remember, the inhabitants of the Twilight Zone of Mercury have been extinct for ages, even on their own planet. Fossil skeletons on Mercury show that the people died in their tracks, in great crowds, all at once. From plague or from some unidentified war gas. And that in spite of their vast scientific civilization.

"Besides, on Mars, even among the modern Martians, there are legends about huge, fiery events in this part of space, long ago, when their ancestors were still primitive."

Norvell gestured expressively.

"So do you blame me for my hunch about danger here on QM-one, not even considering the thing I've got in this box? I can be wrong, of course, but do you want to risk thousands of lives and tremendous capital here, without being sure?

"What if a thorough investigation takes a few months? That's a small waste, balanced against whatever might happen, if we don't investigate. You've usually been reasonable, Chief."

Frank Norvell's gaze slammed hard against the steady, critical but not

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unfriendly eyes of Big Jack Leland.

"We've settled that much before," Leland said. "I've got finished spacecraft to deliver on schedule to the various shipping companies. I've got competitors. The arguments you've offered so far are thin and vague.

"To my way of thinking, they don't constitute sufficient reason for expensive delays. Maybe if I see whatever it is you've captured, Norvell, it might affect my opinion."

"All right." Norvell sighed tiredly. "We've got to rig a cage first, though. With another steel packing case."

THE cage they improvised for the captive was stout and strong. Narrow observation slots were cut in its sides with Norvell's neutron-blast pistol. It was set up in a toolshed among the moss-trees, some distance behind the office shanty. Norvell dumped the monster from the original box into its new prison, and secured the lid with a heavy padlock.

"There!" he grated. "I was out exploring about a mile from here. Suddenly this little devil-machine came flying up out of a hole in the ground, and headed straight for me. It did a certain amount of damage to yours truly before I temporarily stunned its control-centers with a weak burst from my neutron gun.

"I don't think I injured it permanently. I figured it would be more useful captured than destroyed, because in the latter case we might not even be able to tell what it was."

"Why—it's a robot!" Arla gasped.

"Almost, but not quite," Norvell returned grimly. "Look close."

Deftly and cautiously the young engineer reached through one of the slots of the cage with a sharp knife. He cut the plastic bonds, apparently made from strips of his belt, which had restrained to some extent the vicious movements of the thing's curious multiple metal arms.

Freed to this extent, it began to creep about the cage, its voice mechanism still murmuring and howling. Its body was a metal cylinder, two feet long, burnished and well oiled, but pitted as with vast age. It had no wings, though Norvell had said it could fly.

But wingless flight, now in the twenty-fifth century, was no miracle to Earth people. It had antennae, like horns of flexible metal, that waved nervously, and its metal-rimmed crystalline eyes still seemed to glint with hate and fury.

"Don't worry, Arla," Norvell reassured the girl. "I'm sure it can't attack us now—from inside the cage, anyway. It had heat-ray weapons attached to its forepart, but when I had it stunned I naturally took the precaution of unscrewing the focusing lenses from those weapons."

Norvell was toying with two little crystal disks.

"The thing is of ancient Mercurian workmanship, all right," Big Jack Leland commented, studying the weird captive. "I know. I used to hang around museums. It must be ten million years old. And it still functions!"

"Why not?" Norvell questioned. "If it took good care of itself. Now look through that crystal cover in its flank. See what's there."

They all stared—even Ames Leland. Beneath the transparent, windowlike curve in the cylinder was a convoluted lump, pulsing with evident life and embedded in some fluid, certainly nourishing and preservative.

"A brain!" Arla gasped. "A brain kept alive in a machine!"

"Sure," Norvell prompted. "That isn't so wonderful. Our own scientists on Earth conceived the idea of keeping brains alive outside of living bodies, long ago. This one evidently belongs to a Mercurian. He managed to preserve his intellect this way, far beyond his natural life span and long after his race was destroyed."

"But look how withered the brain is!" Arla pointed out.

NORVELL smiled patiently.

"Naturally," he said. "After ten million years. Vitalizing apparatus could keep it living, but it aged slowly just the same—got senile. It isn't a brilliant brain any more; its powers have largely decayed. The way it sent its metal body jumping at

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me a little while ago, without good reason, shows that."

"All very nice," Ames Leland drawled. "I congratulate you on your scholarly deductions, Norvell. But what do you mean to suggest? That QM-one is dangerous merely because there is a robot-brain in it? That many others may lurk underground, ready to pounce on us and our spaceship factory?

"Personally, I say 'bravo!' if that's true. The hunting around here needs improving, since otherwise there are only oversized dragon-flies and a species of modified Mercurian rodents, smaller than mice, in the moss-forests."

He patted Norvell on the shoulder mockingly, as if the other were a small boy in need of reassurance.

"Don't worry, Norvell," Ames Leland added. "We'll be ready for those robots. You'll get protection. We won't let anything happen to you!"

Ames Leland's studied insults were getting beyond mere humor, as far as Frank Norvell was concerned. His face, showing the marks of recent battle, flushed with fury, and his fists went hard. He was ready to give the young snob a beating he'd remember for a long time.

But Big Jack Leland grasped Norvell's arm.

"No hot-headed foolishness!" he said quietly. "I respect your opinions, Frank; but I can't personally agree to delaying the work on our spaceship plant. We can defend ourselves, even if there are thousands of robot-brains. And we'll keep on the lookout for anything suspicious."

Norvell cooled a little. Leland pushed his nephew out of the toolshed and followed, leaving the engineer alone with Arla Manly and the ancient captive.

"Of course I didn't mean just that we might have to fight a lot of robots, Arla," Norvell muttered. "To tell the truth, I don't know exactly what I do mean. But I still think there's danger here. There's so much that's unexplained! Or maybe I'm just a fool."

But suggesting to himself that he was a fool didn't quiet Frank Norvell's suspicions. The asteroid belt was a strange ribbon of jagged fragments, circling the sun between the orbits of Mars and Jupiter.

QM-one was a strange little world. And the quasi-human Mercurians who had once roamed the entire Solar System were a forgotten race now. They'd been here on QM-one—the last intellect of their kind was still here. Maybe he had companions, survivors of a nameless catastrophe.

"Our robot-brain friend has a voice mechanism," Arla prompted. "Some of those noises it makes sound like words. If the thing were taught a little English, it might give us some information."

"Yeah, I was thinking of that," Norvell answered. "Let's start being teachers."

They tried a lot of words and methods. Pointing to objects and naming them. Repeating phrases as one might while trying to educate a parrot. Results were small. The robot-brain, propelled by whatever unseen spatial forces that enabled it to fly, launched itself at the slotted bars of the cage furiously. Some of its cries sounded now not like rage any more, but like sorrowful wails over its imprisonment.

"Poor thing," Arla sympathized.

"Wait!" Norvell offered. "I've got a feeble idea. A hundred to one it's no good—"

IN HIS hip pocket he had a harmonica. He took it out and started to play. It wasn't very good playing, but presently the robot-brain seemed to listen with its microphonic ears. It quieted. Norvell used up all the tunes he knew, and then started over again. He was weak and out of breath, and his lips were raw.

"Our pet likes my music!" he commented.

Arla laughed teasingly.

"I'm glad somebody does," she said.

But she was somewhat awed at the strange being's reaction, too.

They tried teaching again. Norvell played at intervals. Within a few hours—it was after midnight of the thirty-hour day of QM-one—the robot-brain from ancient Mercury could pronounce the words "Earthian" and

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"Hello!" And it offered a word of its own—"Kuda"—which seemed to be its name, or the name of the man it once had been. Its tone was cracked and wavering, but clear.

"The voice sounds like that of an old, old man," Arla suggested. "A man so old that he's easily irritated and fussed."

Norvell wondered if the comparison wasn't practically perfect.

"We'd better call it a day," he said. "Tomorrow there's work to do."

He locked the toolshed carefully as they left.

* * * * *

Under big Jack Leland's orders, QM-one was resurveyed sketchily during the next week. The results revealed practically nothing new. The hole in the ground, out in the moss-forest, which Frank Norvell indicated as the burrow from which Kuda, the robot-brain, had emerged, was explored. It was fifty feet deep—just a crude shaft, apparently excavated with some high-energy tool involving intense heat.

But the bottom seemed a blank cul-de-sac. No one knew that the jagged rock at the lower end of the shaft masked an intricate revolving door of massive, super-hard alloy.

Frank Norvell's days were spent directing the construction of the spaceship plant. Evenings he was always with Kuda, the robot-brain.

But teaching English to Kuda proved almost futile. His senile mind made scant effort to learn. He did not seem to hate Norvell any more, but he was stricken with moods of depression and retired sullenly within himself.

He needed nothing from Earthmen—food he did not require. His metal body was energized by an atomic-power battery, capable of sustaining it for centuries without renewal.

Even the nourishing fluids in which his living brain was embedded must have been constantly refreshed by the energy of that battery.

Music seemed to soothe him—it was his one slender contact with people from Earth. Harmonica music, radio music and sometimes Arla's singing.

Norvell became moody, too, as he struggled endlessly to instruct that weird monster, and perhaps learn about the sullen past. But there was no result.

Often, at first, Arla tried to help Norvell. But presently she began to stay away. She was with Ames Leland a lot. Norvell was angry about that, and he was sad. Feeling low, he forgot to be his usual aggressive, good-humored self. Let Arla make her own choices.

"Well, where are the rest of your so-dangerous robots, Norvell?" Ames Leland would laugh. "I don't see them around."

A frustrated, sadistic light would come into young Leland's eyes. Norvell admired hunters, but not the kind in whom the killer instinct was so easily and casually aroused.

"Beat it," he would growl. "I've got more important business than to listen to you."

AMES LELAND drank a lot. He was indolent and of little use with the construction work on QM-one. Norvell knew this, and he knew that Big Jack Leland knew it too.

Then came that evening when Norvell got wise to himself about Arla Manly. She certainly had gotten Ames Leland's number long ago. She wasn't dumb by any means. When he quit work that evening, Norvell went straight to her quarters.

"You never asked me to help you with Kuda, Frank," she explained. "You forgot all about me. So I tried to make you jealous, I guess. Besides—well, I wondered if maybe—just maybe—you hadn't been trying to slow up the project here, with all your talk of danger.

"You might have been trying to give an advantage to some competing spaceship company. That would be a pretty rotten trick, Frank. Being a paid saboteur—"

"Arla! For Pete's sake!" he protested, hurt.

Then he guessed that it was Ames Leland who had somehow stirred up Arla's faint suspicion. But he controlled his anger.

They hung around the barracks for a while, playing ping pong, looking

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at magazines. Then they went for a walk in the frosty night. Norvell had his arm around Arla.

They heard the sudden commotion from the direction of the toolshed where Kuda was kept. Kuda's familiar screams, mingled with muffled human mutterings.

"Quick, Frank! Something's wrong!" Arla cried.

They ran through the darkness to the shed. The lock of the door had been clumsily pried away. In the lighted interior of the little structure there was a strange tableau.

Ames Leland stood swaying over Kuda's cage. His hair was awry, his clothing soiled. He leered down at the imprisoned Mercurian robot-brain. The lid of the cage was partly open, the lock having been shattered. Leland held a heavy metal bar in his hands, and with it he was thrusting down viciously at Kuda's body and sensitive antennae.

"Come on!" he was muttering thickly. "Le's play circus! Come on—do tricks, you crazy, ten-millyun-yearsh-old monshter! Norvell shays he can't teach you nothing. Thatsh 'cause he's sho shtupid!"

"Ames!" Arla cried in terrified sharpness. "Close that cage cover! Kuda will escape! And then who knows what will happen!"

Leland lurched around in his alcoholic delight.

"Hello, folksh!" he greeted, waving part of his hand feebly. "Glad tuh shee yuh! Jusht in time for the show!"

If Frank Norvell had ever wanted to take a really murderous swing at Ames Leland, it was now. For his senseless cruelty, for his childish lack of responsibility. But that dangerously unfastened cage cover—Leland must have broken the lock with his metal bar—was far more a matter of concern now, than trying futilely to teach Big Jack Leland's nephew a lesson.

Norvell leaped to remedy the danger. But he was too late. Kuda suddenly shot up from the bottom of the cage like a bullet. The force of his flight, driven by unseen energy, sent the lid of his prison banging wide. He wasn't temporarily paralyzed now by a neutron beam, as he had been just after his capture.

Like a wisp of wind he was gone through the doorway. But his thin scream echoed in the night.

"Earthians! Earthians!"

Ames Leland had been tormenting him, and in his cry now there was a note promising savage vengeance. Kuda had a petty, senile mind, and in it there was a black fury.

NORVELL collared Leland and shook him with all his strength.

"You utter, abysmal idiot!" he hissed. "Get out of here! Go to your quarters!"

He emphasized his words with a solid kick to Leland's posterior. So there was no further argument. Leland left. Now he was in alcoholic tears.

"I guess we'd better rouse the camp, hadn't we, Frank?" Arla said nervously. "Kuda's blazing mad. No telling what he'll do."

"Yeah," Norvell answered. "His mind is dimmed with age, but I'll bet he remembers some devilish scientific tricks!"

The robot-brain had vanished, as it proved. For a while, in the awakened camp, there was an ominous waiting, men asking each other questions under the bleak stars.

Then came a low, crescendoing drone from deep underground and a gradual, thrusting sensation, as of mighty movement—acceleration. As though the terrific mass of QM-one was speeding up—going somewhere.

"Now what?" Big Jack Leland growled. "That noise sounds like driving engines of some kind! That fool nephew of mine! Why can't he spend his sprees on something innocent, like breaking his own neck? Norvell, I want to apologize for being bull-headed. There is something wrong with this asteroid!"

"Skip it, Chief," Norvell responded. "Here comes Saunders, our physicist. What's the good word, Saunders?"

The little bald-headed man looked slightly wild.

"According to my instruments," he said, "QM-one is moving sunward.

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We seem to be on a curved path that will bring us close to Earth. Our acceleration is fairly high, though there's hardly been time to determine its exact rate and direction."

"What do we do now, Norvell?" Big Jack Leland asked.

"Try to stop those engines, or whatever they are, I suppose," Norvell replied grimly. "See if we can learn what this is all about. Find the point on the surface of QM-one where the droning is loudest, and start digging. That should be the first step."

The sound was much louder near the burrow from which Kuda had first emerged, before his capture; so the site for the excavating was easily localized. The crew began to work with large neutron-blast projectors.

There were furies of blazing energy, as the streams of neutrons bit into the soil and the meteoric iron underneath, turning it to incandescent vapor. In the moss-forest, tiny, terrified rodents scampered away, squealing.

In a very short time, the excavating had gone down fifty feet. But there the obstacles stiffened. There was a layer of yellow alloy of obvious artificial origin. And in it was that strange door, whose edges were barely discernible—the door that had been hidden at the bottom of Kuda's burrow.

"It's hopeless to try to figure out the combination of that," Norvell decided. "Kuda probably came this way to go below and start the machinery; but anyhow, he probably locked himself down there from the inside. So keep on with the blasters!"

It proved a slow, gruelling job. That thick and stupendously resistant yellow alloy was no slight barrier even to neutron streams. The night passed, and progress was scant. Still that gradual, mighty acceleration of QM-one kept on.

There was no special strain to it for human bodies to endure. It was just a matter of a few feet per second according to Saunders, the physicist. But as the hours went by, it built up slowly to a stupendous velocity that covered miles of empty space in the interval of a heartbeat.

"And we *are* on a curved path, taking us toward Earth!" Saunders offered ominously.

SO THE workers redoubled their efforts to pierce that alloy door, and the vast layer of alloy around it.

Two thirty-hour days passed like that. Ames Leland sometimes watched the toil haggardly, with a hunted, guilty look in his eyes. But he did nothing to help.

"What's happening?" he kept muttering. "Whose game is this?" There was stark terror of the unknown in his voice.

Once Frank Norvell lost control of his own somewhat frayed nerves at Leland's bothersome presence. He knocked him down. But there was little satisfaction in that. And an hour later, Big Jack Leland's nephew was found dead, horribly clawed, in his quarters.

"Kuda did that," was his uncle's comment. "There must be other hidden exits from the underground. But how would we ever find them in the moss-forest? Kuda sallied forth and got his revenge on Ames. But I guess he means to take it out on all of us."

The spaceship manufacturer showed no sorrow over the loss of his nephew. Only a faint disgust.

The velocity of QM-one was something in the hundreds of miles per second now, having had so long a time to build up by that continuous acceleration. A speed like that can cross even huge interplanetary distances in a hurry.

The orbits of the straggling, fragmentary asteroids already lay far behind. The path of Mars had been crossed. Earth lay ahead, a small, greenish crescent, ominously in QM-one's line of flight.

Ultimate developments would come in only a matter of hours now.

"Get all spaceships ready to take off!" Big Jack Leland ordered through a loudspeaker system. "We may have to evacuate QM-one in a hurry!"

Not many minutes later, Norvell took a moment off from his gruelling work to talk to Arla Manly. He was blistered and scorched, and utterly tired. The girl had tears in her eyes.

"Frank," she choked. "Saunders

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says QM-one is almost sure to collide directly with the Earth. QM-one is only twenty-five miles in diameter—small for a world. But at the speed it's going, and with the weight it's got, it'll ram its way right down to Earth's center.

"There'll be terrible storms, tidal waves, earthquakes! Millions of people will be killed! Can't somebody do something—get those engines, or whatever they are, stopped in time? Are we going to fail?"

"We're almost through the alloy shell, I think," Norvell replied, taking Arla comfortingly in his arms. "We'll reach those engines. Now you get yourself ready, in case we have to evacuate—and don't you worry. We're doing all we can."

But as he went back to work, his hopes were scant, indeed. Even if those mysterious Mercurian motors which drove QM-one like a gigantic spaceship could be reached, was time left to check that awful velocity or change that deadly course, bound into a rigid groove by terrific inertia?

And what *was* the gigantic enigma, here—the real purpose of QM-one? The mystery of its unknown past? The asteroid couldn't be just an oversized spaceship. It weighed far too much—was evidently far too solid. Spaceships were comparatively light, being mostly hollow, habitable compartments. While QM-one was so fearfully heavy that it must have a star-metal core!

Suddenly there was a rumbling sound in that huge excavation dug there in the moss-forest. A ragged cheer went up from the toilers. They'd gotten through the alloy barriers!

THE roof of a huge, cavernous room had collapsed. In it throbbed those gigantic motors, which perhaps found traction in the structure of space itself, to drive QM-one. They were great cylindrical drums of yellow alloy.

"Come on!" Frank Norvell yelled.

In his excitement, he failed to notice that Arla had disobeyed his orders and was close behind him. If there was to be danger, she did not wish him to face it without her.

Following Norvell, the men climbed down into the huge room, holding their neutron guns ready. Kuda, the robot-brain, crouched there at some odd controls.

Under the muzzles of many weapons, he stood his ground.

"Earthians!" he screamed poisonously.

His withered brain, visible through the crystal window in his metal body, pulsed angrily. No music could soothe him now. With a movement of his gleaming arms, he shifted levers. The gigantic machinery whistled to a stop.

"He's mocking us," Big Jack Leland grated. "He knows that the crash with Earth is inevitable. Even if the engines here were put into reverse, it's too late. And deflection—steering aside—must be about equally impossible.

"It would take millions of miles of room to turn the mass of this runaway planetoid as much as one degree from its course, now, at this speed!"

Cursing the necessity of doing what had to be done, Norvell drew his neutron gun. And in that moment, a soft breath on his neck caused him to swing about, eyes widening.

"Arla!" he exclaimed. "You darn little fool. Get back!"

He thrust out his arm protectingly, then fired a stream of dazzling energy from his neutron gun. The robot-thing burst apart. The brain of Kuda, last remnant of the once mighty Mercurian race, was dead.

Perhaps he'd been a noted scientist once—a member of the group of Mercury people who had originally built and planned on QM-one so long ago. No one would ever be sure of his personal history.

Young Frank Norvell tried not to notice the event of Kuda's death, for he was studying the machines and apparatus here in this gigantic compartment. He noted things. There was a kind of sighting device, such as might be used for a giant gun. Cables went down into the floor suggestively.

Besides the engines, there were many things here, vaguely familiar, for they dealt with neutrons—as in an ordinary Earthly neutron weapon. Norvell was an engineer. Neutrons—neutronium.

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Neutronium was composed of solidly packed neutrons—those tremendously heavy and inconceivably small particles which form part of the nuclei of ordinary atoms. Neutrons were deadly. Directed in streams from projectors, they could transmute elements—destroy the structure of matter!

And now, looking around this weird control and power room, Norvell thought he understood the riddle of QM-one. It fairly made his heart leap into his throat with sheer terror. He remembered again the asteroid belt and the Martian legends. And he decided now that the Mercurians might have actually *built* QM-one—in space!

A hundred years, the job might have taken. But they had been desperate, ready to go to any lengths. They'd provided it with an artificial atmosphere, to make their work easier. . . . And in later ages, settling cosmic dust had given it a soil—so that it looked like a real, natural world.

"Bring explosives!" Norvell shouted hoarsely. "Everything we've got, rocket fuel included, except enough for the ships to blast off with. All ships leave with their crews, as soon as possible. All except Big Jack Leland's cruiser, which will evacuate the final fifty of us!"

"What's the idea?" Leland wanted to know.

"Never mind!" Norvell answered.

ANXIOUS workers came, bringing drums of high explosive. Swiftly the drums were unloaded into that vast and now roofless room. Then the spaceships darted out into the void.

"If you're thinking of saving Earth from a collision by trying to smash QM-one with a charge as comparatively light as this, you're crazy, Norvell!" Big Jack Leland grumbled.

"Stop talking!" Norvell ordered, fixing a time-fuse. "All set. So let's beat it—Arla! Are you still here?"

Five minutes later they were far out in the void, in the Leland cruiser. To the right, QM-one tore on, intent on burying itself in the vitals of Terra, now looming comparatively near. Norvell knew that if that crash ever occurred, the death of a million people would seem like nothing at all.

In fifteen minutes, the Question Mark Asteroid, moving at a fearsome rate, had gone far ahead of Leland's spaceship.

Then came a blast beyond all description. It was a terrific, unbelievable detonation that temporarily half blinded vision, even at a distance of a quarter-million miles. There was no sound in the voidal vacuum—only that intense, blue-white sunburst, surging outward at incredible speed.

Big Jack Leland gasped.

"That wasn't just our little dab of explosive going up!" he stated. "For a second I thought QM-one really hit the Earth. But there must have been at least two hundred thousand miles to spare."

Norvell gave a fervent sigh of relief, and hugged Arla closer to him.

"That's over," he breathed. "In safety, thank God— No, it wasn't *our* explosive."

"What was it then?" Arla asked.

"It looks as though, in those past ages, the Mercurians had a big war with another planet," Norvell explained. "They themselves were wiped out with gas, or with plague germs or something. But it seems now that they finished off their adversaries even more spectacularly.

"You know, there's a theory that all the asteroids once formed a single planet—call it X for unknown. QM-one isn't an asteroid, of course. It was designed as a special pill by the Mercurians—one of at least two. QM-one was an extra, or spare—whatever you want to call it."

"Hunh?" Big Jack Leland grunted.

"Arla and I want to get married," Norvell went on imperturbably. "But that will be a comparatively small interruption. . . . You can get a concession to build spaceships on the Moon or Mars, Chief.

"Well," he grinned, "I might as well explain that the explosive charge we laid on QM-one served only as a sort of primer cap, like for an ancient cartridge.

"You wouldn't have cared to operate a spaceship factory built on a twenty-five-mile-in-diameter *neutron bomb*, designed for blowing up planets—would you, Big Jack?"

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This STARTLING WAR

News and Notes from the Science Front

SKY MONSTERS COMING—One of the great scientific developments of this war is the growth of the airplane. According to H. D. Hoekstra of the Civil Aeronautics Administration in a recent Chicago address, planes weighing more than 600 tons are well within the range of present possibilities. Glass fabrics, beryllium alloys and other plastics will make these big fellows even bigger, thanks to their lightness and toughness. It will be aerial freight trains, not freight cars in the very near future.

* * *

NEW RECOIL MUFFLER—*A device so simple that it's a wonder no one thought of it years ago has been patented by Army Ordnance Colonel Richard C. Coupland and, combined with present recoil devices, threatens to eliminate that jarring feature from artillery in the near future. It consists of a strong spring mounted* outside *and around the barrel of the weapon. Within the limits set by the spring, the gun is free to slide backward in its cradle, but its strength insures a minimum of aim and gun destroying jar.*

* * *

STREAMLINING THE AIR-COOLED ENGINE—A pre-war Nazi invention recently patented in this country may prove of great value to military and naval flyers. Discovered by one Waldemar Schlupp of Berlin, it consists of a plan for an in-line, air cooled engine, which should increase the speed of planes using it. Air is scooped through the cowling and distributed evenly to all cylinders.

* * *

GO FLY A KITE—*Inventor R. J. Thompson of Bakersfield, California, has come up with an airplane which looks more like a boy's kite than a conventional flying machine. Thanks to its vastly increased lifting surface, its designer claims quick climbing powers and almost perfect stability for his radically planned ship, which should make it ideal for artillery observation, reconnaissance or sub-spotting duty now confined to blimps.*

* * *

GLASS "EYES" COMING FASTER—A brand new diamond-impregnated precision grinding machine developed by the War Department is being used today in plants which manufacture the lenses for gunsights, binoculars and delicate range-finding instruments. Automatically adjustable to the millionth of an inch, it is capable of turning out as many as fifty lenses at one time, thus speeding up immensely the manufacture of these delicate devices, heretofore often a laborious single operation.

* * *

PULL IN YOUR PANTS, PILOT—*One of the great handicaps of the seaplane has been the pontoons that are its greatest safety point in over-water flying. Their bulk has made any real streamlining virtually impossible, kept the ships at slower speed than land-based planes with their retractable landing gear. Now, thanks to an invention of Bertell W. King of Brooklyn, the problem may well be solved. Mr. King has just patented a new type of pontoon for seaplanes which can be rendered retractable either into the wings or the fuselage, depending upon the design of the plane. Even the pontoons themselves are retractable, thanks to telescopic ribs which can be extended or collapsed by the pilot's pressure on a dashboard button.*

* * *

SCOOP THAT FIRE BOMB—Charles H. Birch of Mount Vernon, New York, has just patented a device that may well figure largely in Air Raid Precaution plans against bombing raids on our coastal cities. Lined with asbestos, it is a pole-handled, oversized dustpan with a gabled roof, especially designed to scoop up incendiary bombs before they can get in their deadly work. With it goes a hoe-like implement, also of fire resistant material, with which to scrape the flaming menace into the scoop.

* * *

U. S. TAKES WING—*An invention by Claude Dornier, the famous Friederichshafen bomber builder himself, has been patented in this country for use by American aeronautical designers. It is an auxiliary wing which retracts into the main wing during flight but drops down during landing and takeoff to give greater lift.*

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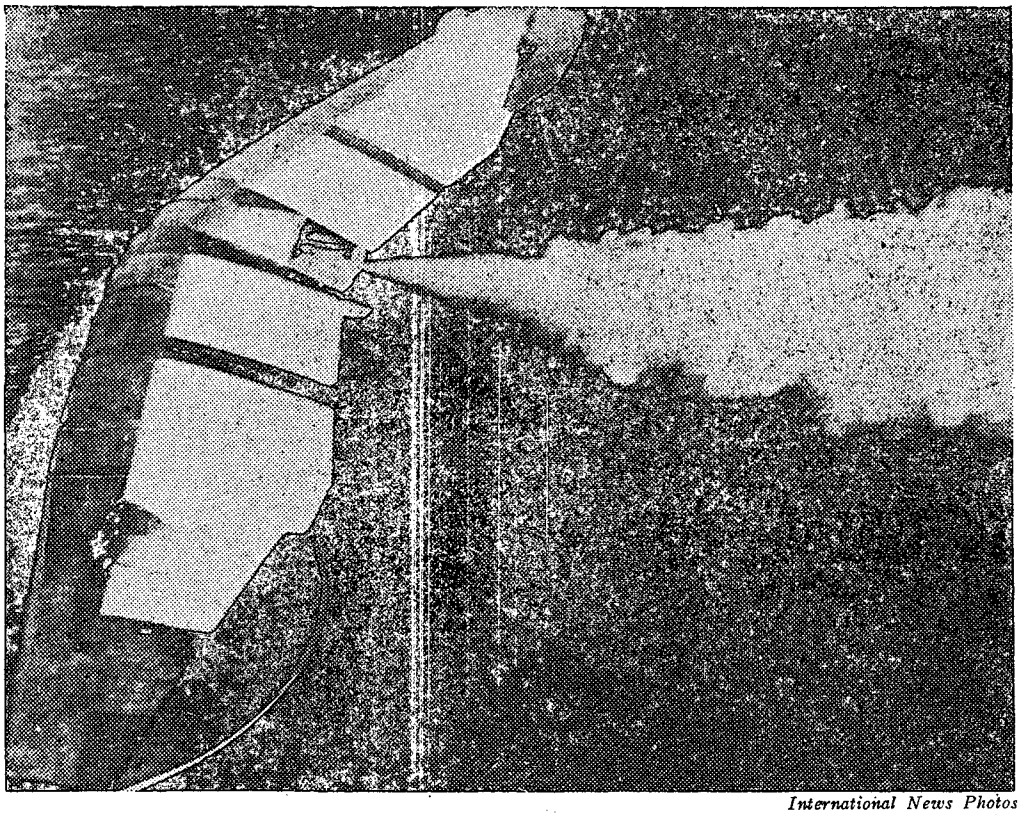

International News Photos

Novel rocket plane designed by Kurt Espenlaut about to leave the ground at Bremen, Germany, on its first test flight with Espenlaut as pilot. It attained altitude of 1,100 feet.

The Rocket's RED GLARE

By CARTER SPRAGUE

From the Frozen Steppes of Russia to Libya's Burning Sands, the Weapon of the Future Is Already Exacting Its Terrible Toll

THE ugly Stuka, like some monstrous insect, was poised for a take-off from a Nazi airdrome in Normandie. Less than a thousand yards ahead of it, the barrier of forest trees marked the abrupt end of the hastily improvised runway. The date was 1941, and the Hitlermen, still trying to bomb England into submission, were using every level space they could convert to launch Marshal Goering's *Luftwaffe*.

The pilot, looking like a man from Mars in his helmet with its chin pad and goggles and oxygen equipment, waved a gloved hand at the ground crew, who scurried out of the way as he released the brakes. With slow and deadly majesty, the bomber began to move forward along the runway.

Faster and faster it went as it gained momentum, but with the trees drawing closer and closer, the weight of the bombs in its belly kept its wheels from leaving the ground. A crash into the forest rim and a resulting conflagration looked inevitable.

And a Deadly Ship Flies On

Suddenly, from the bottom of the plane's fuselage, came a hissing burst of blazing fire that left a trail of thick smoke in its wake. The Stuka appeared about to be wrapped in flames before it had fairly taken off.

But some propulsive force in the flames themselves hurled the bomber into the air. For seconds the fire continued, lifting the ship safely, if ungracefully, over the

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tops of the trees. Then it sputtered out, and a rectangular object scaled into the woods.

It was a rocket frame whose powder charges had shepherded the Stuka safely off the too-short runway of the improvised field. The deadly ship went serenely on her way to the English Channel, where a small convoy of cargo ships was reported on its perilous way to the Thames Estuary.

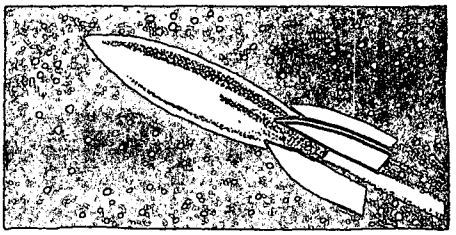
A few minutes later, the crew of the Stuka spotted their prey far below them on the wrinkled surface of the water. A tanker and two freighters were down there, escorted by a scattering of small warcraft and moving so slowly that they did not appear, from ten thousand feet up, to be moving at all.

Sitting Quail

The bombardier, gloating, took command as the bomber prepared to make her first dive on these sitting quail. Didn't the fool English have sense enough not to send their shipping through the channel when the Hitlermen had full control of the air above it? He spoke to the pilot briefly, and the horizon slid upward and to one side as the screaming plane peeled off.

Down they went—one thousand feet, two thousand feet, three thousand feet, a mile. Ack-ack guns on the ships blossomed in twinkling patches of flame. Some of the shells, looking like monster tracer bullets, left fiery trails as they rose slowly upward, bursting well ahead of the Stuka, too far ahead to do any damage to the downrushing plane.

But two of the bursts, directly ahead of the dive bomber, failed to vanish completely. For a brief fraction of a second, the bombardier was able to see them turn into tiny parachutes. He screamed a warning to the pilot into the intercommunicator, fearing some new sort of bomb, and the pilot made the dive a little



deeper to cut under the small chutes.

Rrrrrrrrip! With a frightening sound of rending metal, something had fouled the propeller, was beating at the nose of the plane, the cylinder heads, the cowling.

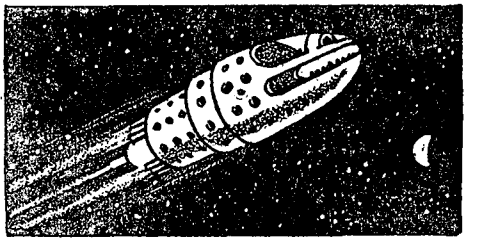
Crash! Even more terrifying, another unseen object had gripped the left wing, cut half-way through the light metal. Watching with panic-stricken eyes, the bombardier saw the wing slowly separate itself from the rest of the ship. Out of control, the bomber screamed toward the channel like a mortally wounded duck. The water came closer—closer.

Two Sides to a Story

What the crew of that ill-fated Nazi plane didn't know was that both sides in this war were using rockets. If the Nazis used them to get planes up off short-runway airfields, the British were using them to bring these planes to earth as mangled wrecks.

This rocket anti-aircraft weapon, employed with devastating effect by British ships in bomber-infested waters, is a gun of simple construction which fires rockets from the deck. On bursting, these rockets become little parachutes from which depend steel ribbons designed to foul the propellers of attacking planes. They are fired well ahead of the diving plane, float in its path until it gets tangled up in them.

Yes, the rocket, long employed only by Fourth of July celebrants, by screwball inventors and by fiction writers, is coming into its own as a weapon in World War Two. Already it has been applied with devastating suc-



cess in many fields other than the two shown above.

Bombs Versus Shells

Last winter and the winter before, Russian tank-destroyer planes, which were no more than specially-fitted light bombers and heavy fighter ships, raised holy hob with Nazi mechanized units, especially since German air-power was paralyzed by the extremely low temperatures.

These planes used cannon of a heavier caliber than had been mounted in planes theretofore. And they also used rocket bombs. It was the latter which scored most heavily against thickly-armored vehicles.

The chief trouble with bombs as against cannon-fired shells has been that the bomb has lacked the initial velocity of the shell, therefore has not had its penetrating power on striking its objective. When a bomb or shell is detonated, the explosion of necessity takes the path of least resistance.

Thus, a bomb which explodes on contact or even afterward expends its force, if it has not penetrated its objective, away from the building or ship it is supposed to destroy. A shell, already inside this building or ship, blows from the inside outward, creating many times the havoc.

Eight Miles a Minute

Extremely heavy bombs, like the British two- and four-ton "block busters," when released from great heights, tend to overcome this disadvantage by sheer weight and the momentum they acquire in falling to earth. But here again, there is vast wastage through inaccuracy as compared to gunfire.

In American tests of rocket-propelled bombs conducted shortly before Pearl Harbor by scientists Willy Ley and Herbert Schaefer,

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it was found that a 230-pound bomb, dropped by a dive bomber moving at 200 miles an hour from a height of 1,000 feet, reached earth in 2.1 seconds with an impact velocity of 656 feet per second—almost eight miles a minute.

Under similar conditions and without rocket propulsion, the same bomb took three seconds to reach the ground and struck with a speed of but 382 feet per second—just over four miles a minute. In other words, with rocket propulsion, it could penetrate armor almost twice as thick before exploding. And as a dive bomber sends its projectile hurtling on an almost straight line at its target, the rocket charge increases its accuracy.

It was such a means of propulsion—a small cylinder in the tail of the bomb packed tight with rocket powder—that was used by the Soviet tank-destroyer planes (usually Sturmovik light bombers) with such deadly effect on Nazi medium and heavy tanks.

Rommel Used Rocket-Propelled Shells

For level bombers, however, the use of rocket power increases the difficulties of hitting the target on the nose rather more than it aids destruction by lifting the impact velocity. As all modern bomb sights work on the theory of the curve a bomb dropped from a level bomber must follow, they are useless when rocket power is added as this power does weird things to the bomb's trajectory. So far, they're a dive bombing weapon.

However, the use of rocket power in the case of artillery is increasing with every day the war drags on. When Rommel broke the back of the British Armored regiments in Libya, which enabled him to drive almost to Alexandria and threaten the Suez Canal, he accomplished this purpose largely by means of a rocket-propelled shell mounted in his .88 millimeter anti-tank guns. Such shells cut through the best medium tank armor like a knife through cheese.

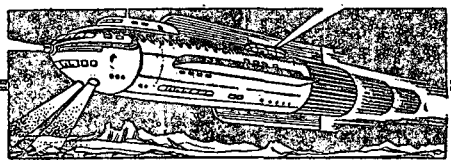
The Russians, whose scientific ingenuity is inspiring growing respect, had already gone this system one better. They alone had used rockets as projectiles rather than signals in World War One, mounting them in planes and employing them with success against "sausage" observation balloons, and they haven't given up their leadership in this contest.

Broad and Varied Use

Using a specially designed gun carriage, they have mounted on it a multiple rocket projector using at least a dozen thin-walled tubes. These tubes are charged with rockets which carry high-explosive nozzles—something like a small torpedo's war head—and can be discharged singly or in salvo against an enemy tank.

The latter tactic is extremely effective. A tank driver can usually see a rocket coming his way, can all too frequently steer clear of its path. But when they come at him by the dozen, his goose, or rather his tank, is cooked. Furthermore, he and the other members of the crew are usually cooked with it.

The future uses of rockets as weapons of war are as varied and broad as the entire field of science fiction—only in this case, as in so many others, notably the plane itself and the submarine, science fiction has become grimmest reality. The rocket ship itself is now just over the horizon.



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TEAMWORK FOR VICTORY

A Message for All Americans

By JAMES M. LANDIS

Director of the O. C. D.

JAMES M. LANDIS

UNITED NATIONS forces are on the offensive along the warlines of the world, but we must not let down at home. Our Axis enemies are brutally cunning and resourceful. If they think our guard is down, they may choose that moment to strike us. Whether the news of the fighting is good or bad, we must carry on at home until our total enemy is totally defeated.

It is going to be hard, but not as hard for us as for our sons and brothers in the war zones. Ours is the less spectacular task of tightening our belts, salvaging everything on scrapheaps that can be used in this war, putting in long hours of volunteer work, sharing our tires and gasoline, giving our blood, mending and scrimping and buying war bonds. There will not be many heroes among us. Our adventure will come through teamwork.

Teamwork to make every blackout a cavern of guesswork for the enemy at the bombsight. Teamwork to gather and transport every piece of rusted scrap and every bit of decaying rubber. Teamwork to fill the membership of the car club and force out the Hitler who rides the empty seat. Teamwork to care for children while their mothers work. Your team is your local Civilian Defense Council. The workers are all of us.

If we adventure well in these fields that are open to us, and work for a just peace for all men, there will be a new and freer world of peace in which we and our children can adventure after the war.

James M. Landis

Director,
U. S. Office of Civilian Defense.

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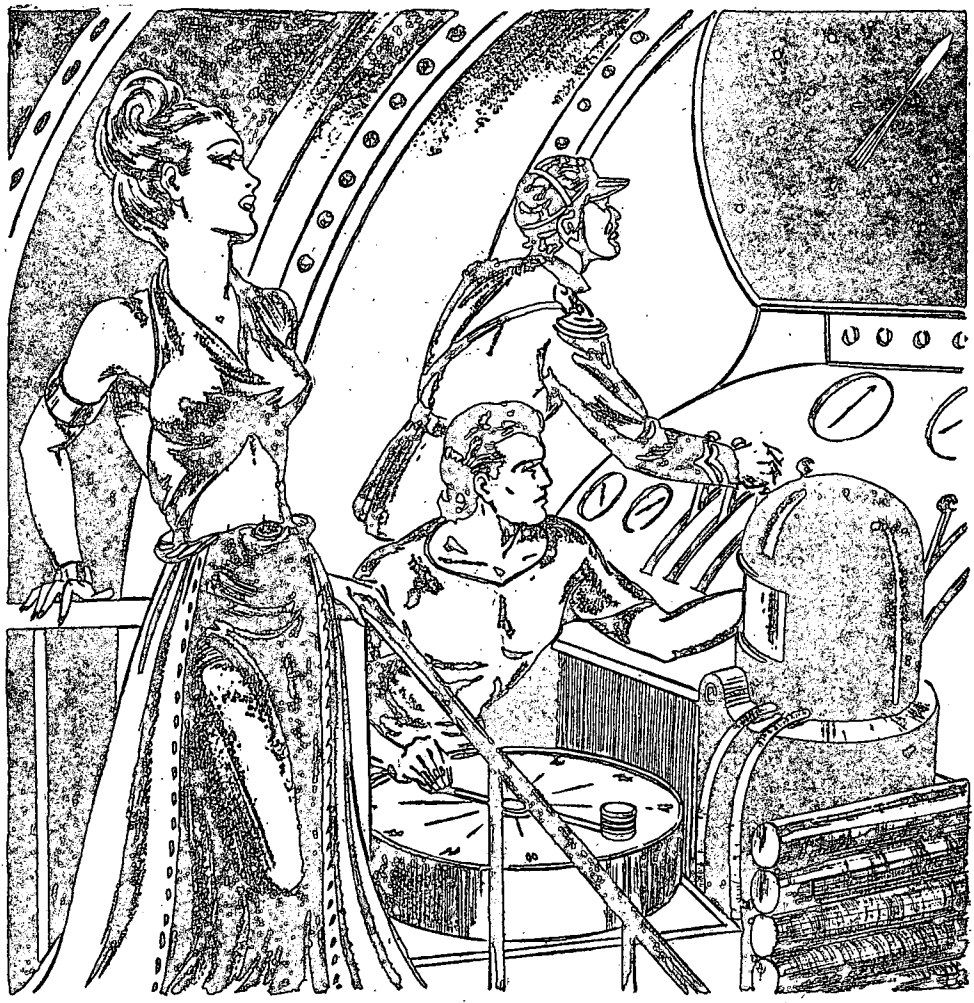

Armand Rambeau flipped levers frantically, and the ship spiraled into the sky screaming after the other ship

GHOST PLANET

By THORNE LEE

When an Invisible Enemy Threatens the Safety of the World, Captain Elko Van-Darcy Battles to Blast Their Evil Plans Into Nothingness!

THE President of the United Planets faced an audience of ten million in the great Washington Bowl. Captain Elko Van-Darcy, number one bodyguard, stood stiffly behind the President, the square corners of his shoulders hunched for action.

This was Van-Darcy's toughest assignment. His sharp, trained eyes could spot any ordinary danger in that heaving surf of human faces, but there was nothing ordinary about an invisible enemy which struck with phantom swiftness and unknown strength.

Van thought of the hundreds of people in Washington alone who had been snuffed out of existence like so many candles. He thought of the preposterous

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stories of unseen giants who picked up men bodily and carried them out of this world into ghostly lairs.

A lot of the tales were figments of the imagination, but it was not imagination which had stolen ten ships from Planet Airways and had flown them into space. Nor were the unseen hands which snatched human beings off of crowded city streets creatures of imagination!

Van glanced at the grim profile of President Benet Reed. It took a lot of courage for the biggest man in the Universe to stand up here in public and tell people to be calm, when big men were the sort of meat that those invisible monsters liked best! Only last week the Vice-president himself had disappeared!

Captain Van-Darcy towered a full head above the President's stubby figure, so it was easy to see the girl with anxious eyes in the front row.

Van was always seeing Nora Reed's gold-blonde head over her father's shoulder. He wished he could trade places just once with Armand Rambeau, the swarthy space pilot, who spent most of his time muttering compliments into Nora's ear.

Rambeau's sharp face at that moment was close to the girl's cheek, and his eyes roved hungrily down the line of her throat to a bare shoulder. It would be a pleasure, Van thought, to cram a fist into the flier's face.

ARMAND RAMBEAU'S dark eyes swung toward the platform and Van snapped to attention. His mind was back on the job again and a sudden, overwhelming sense of danger shuddered through his body.

When a man lives constantly on the alert, he develops a feel for danger. Somewhere in Van's fingertips and the back of his neck a warning was telegraphed.

Van crouched and his head whipped from left to right. The ducking motion saved him from a sudden blow which glanced off his cheek. It felt like a fist exploding out of thin air!

Van spun on his heel and lashed out wildly with a long left that buried deep in solid substance, but there was no one in sight! Then an invisible arm wrapped around Van's throat and tossed him into a corner of the stage.

A roar of fear swept through the audience. Guards swarmed onto the stage and wrestled wierdly with some monstrous unseen foe.

Through a blur of fighting men Van-Darcy saw the struggling body of President Reed rise slowly into the air and float over the mob without a human hand touching it.

Van staggered to his feet and charged across the stage, swinging his arms, gouging through a flood of human flesh. At the side exit of the great stage two faces drifted into focus—Nora Reed and Armand Rambeau!

"Out that door!" Rambeau hissed in Van's ear.

The terrific squeeze of stampeding people catapulted all three of them through the door. Van landed on all fours and shot up the dark alleyway in full stride, chasing the soft thud of running footsteps. The alley ended abruptly in one of the vast parks that dotted the city. Van paused, panting, and listened for footsteps. Two shadows gripped his arms and he fought them off.

"I'm Nora Reed, Captain," whispered a familiar voice, breaking into a sob. "What was it? What happened to Father?"

The answer came from the dark parkway where a huge spaceship suddenly through off a steam of flaming rockets and streaked into the black sky.

"I'm afraid they've got him!" Van-Darcy groaned helplessly.

"My ship's parked at Planet Airways!" snapped Armand Rambeau. "It's the fastest thing in space."

"Come on, then!" Van roared, dragging the flier toward the bright tower of Planet Airways.

Nora caught them at the door of Rambeau's long racer. The captain tried to push her gently away but she fastened like a burr to his waist.

"I've got to come too!" she insisted.

Van-Darcy leaped inside, roughly tossing the girl into a seat.

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"No time to argue," he ordered. "Let's go!"

Armand Rambeau flipped levers frantically and the ship spiraled into the sky, screaming through the upper atmosphere.

A ribbon of flame was visible far out in space, and Rambeau spotted his course on the fiery tail of rockets from the other ship.

Van-Darcy relaxed enough to drop a comforting arm around Nora Reed's shoulders.

"Maybe there's a chance yet!" he said.

Nora's head rested against his arm. Her hair was a crown of solid metallic gold, encrusted as it was with the thick gilt paint which was the style of the century. Her long bright-painted fingernails touched Van's shirt.

"What are the awful things—ghosts?" she moaned.

"Ghosts, according to my definition, don't fly space ships," Van-Darcy said. "Invisible men, I'd say. But how they got that way or where they come from I don't know. I'd guess, from the way they've gone after all the biggest men in Washington, that this is a planned invasion of the United Planets, starting with Earth."

"There can't be many of them," Rambeau put in. "So far the attacks have been on a small scale."

"I don't call President Benet Reed small scale!" Van-Darcy snapped. "Without him the Inter-Planet Congress may fold up. Without Congress the Planet System is a dead duck and ripe for some upstart planet to step in and take over."

Nora trembled. "What will the horrible creatures do to Father?"

Van's arm tightened reassuringly around her shoulder. "I can tell you this—if we catch them, whatever they do to your father, they'll have to do to me, too!"

"Do you really feel like that about Father?" Nora asked. "I always thought you were just a machine."

"You don't know a lot of things!" Van snapped, dragging out space uniforms for himself and the girl.

On a large telescreen above the pilot's head Van could see the gap slowly closing between themselves and the ghost ship.

Rambeau suddenly threw up his hands in bewilderment.

"Must be some sort of trick," he said. "The way we're heading we'll soon be out of range of any civilized planet. In fact, my calculator shows that we're headed for nothing at all! Those devils are making a bee-line into blank space!"

NO ONE spoke after that. The vault of space closed tightly about them with its queer mummifying chill. Men have been known to sit like corpses throughout an entire space voyage under the hypnotic spell of incalculable speed and distance, kept alive only by the vitamin-charged atmosphere of the sealed ship.

Van-Darcy's deadened brain was slow in recording the changing picture on the telescreen. Infinitely, painfully slow, his lips formed words:

"Look! Rambeau, where is the other ship?"

Rambeau stared at the screen. Ahead of them the white trail of rockets had dwindled to a fading blue.

"They've slackened speed!" he cried. "The reverse rockets are firing."

"That's impossible! Ships don't stop in empty space!"

The conversation woke Nora Reed. Her sleep-refreshed eyes were the first to see the stream of sparks erupting from the outer fins of their own ship. She clutched Van-Darcy's arm and pointed through the transparent side-wall.

"Look! Friction!"

"Atmosphere!" roared Van-Darcy. We'll crash!"

"It can't be atmosphere!" Rambeau gasped. "There's no planet in sight—"

The sparking fins formed a long stream of molten fire, and the metal ship whined weirdly.

"Holy Saturn, it *is* atmosphere!" Rambeau took a long running dive over the pilot's seat and yanked the reverse switch full over.

The roar of the reverse rockets was

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like a hideous wail of death. The ship twisted and groaned, and still its forward speed was so terrific that the metal ribs glowed white-hot. Intense suffocating heat boiled into the control room. Nora collapsed and the two men staggered drunkenly, fighting with the refrigeration switches.

The rush of air along the ship became a deafening whistle which slowly slackened like a siren to end in a single violent crash, and all three bodies piled in a mass against the cruel, stabbing knobs of the instrument board!

Some time had passed when life seemed to crawl back into Van-Darcy's limbs. His body hungered for fresh, cool air. He crawled painfully to a hatch in the ship's floor, fumbled for the spring lock, and dropped through feet first, piling on a hard, moist surface.

There was wonderful air to breathe all right, and there was the cool ground. But the picture didn't make sense, because Van's eyes staring at the ground could see nothing.

He shut his lids and breathed strength into his lungs. He must be blind from the crash! Frantically, he rolled on his back and then gaped in amazement at the crumpled hull of the space ship.

Van blinked and looked again at the ground. He actually seemed to be cradled in a hazy cloud of nothingness. He could see the ship and he could see his own body, but he could see no ground holding him up! And yet he could feel it! He clawed at the seemingly empty air and felt real dirt under his fingers.

A wild thought raced through his mind. This must be a sort of life after death, a ghostly, invisible world of the dead!

But Van didn't feel dead. Dizzy and sore, yes, but not dead. Painfully he crawled back to the ship and pulled out the limp bodies of his companions. The ship must have slowed considerably before it crashed, because they were only knocked unconscious.

Nora Reed's pale face rested in Van's arms, and her warm red lips quivered with life. Irresistibly Van's lips were drawn to hers, to her eyes, the soft cheeks, and the limp white throat, when a voice startled him:

"I suppose that's all in the line of a bodyguard's duties," drawled Armand Rambeau.

Van's head jerked up. The flier was sprawled at full length on his back, apparently hanging in empty space. Van couldn't help grinning because the whole thing seemed so preposterous.

Rambeau scowled. "Can you tell me what we've struck?" he demanded.

Van shrugged and watched Nora slowly sit up, gaping at the spectacle of two men floating in mid-air.

"Don't ask us to explain it," Van said to her. "It's a dream, and we're all in on it!"

Armand Rambeau stood up and stretched his muscles.

"I've been looking for new worlds to explore, and here's one right out of a dream—an invisible world." He lifted Nora to her feet, and looped her waist with his arm. "I'm glad you're here to share it, darling."

Nora pushed the flier away, her cheeks flushed.

"We don't know what we're up against, but it's bound to be dangerous, Armand. Until we've found Father I mustn't think of anything else. I wish you—both of you—would regard me just like a—a man."

Except for her streaming golden hair the girl might have passed for a man, dressed in a loose-fitting civilian flight uniform.

"Hurrah!" Armand drawled. "That makes us The Three Musketeers."

VAN answered the girl's suggestion by starting to explore. Like a spider on an invisible web he crawled up a surface that sloped steeply above the space ship, fingering his way over the mysterious substance.

Reaching the crest of the slope he tried to imagine himself looking down into a valley. To his surprise his groping eyes made out a cluster of visible objects in the distance, far below him. He waved back to the others, who scrambled awkwardly up the invisible slope.

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Armand Rambeau's keen pilot's eyes recognized the spots immediately.

"Space ships!" he pronounced. "Eleven of them!"

"Ten ships were stolen from Planet's Airways!" Van-Darcy said eagerly. "I'll bet we've found their hiding place."

"Maybe," muttered Rambeau. "But what are they hiding in—a mirage? The ground feels like any planet, but you can't see a thing!"

"A ghost planet!" Van declared. "I can't believe it, but here it is!"

Rambeau edged cautiously downward toward the ships. "We seem to be caught in the spider's web, already," he said. "We might as well make sure."

When the three had made their way close to the gleaming space ships, they heard a droning, unfamiliar sound.

Nora huddled close to the men. "What is it?" she whispered.

The noise swelled to a hideous chatter, like thousands of monkeys jabbering, accompanied by a sodden, padding sound like the beat of many bare feet.

The queer tide of life, whatever it was, quickly caught them up. They slapped and kicked at some clammy substance which gripped their arms, tangled their legs, and lifted all three of them off their feet, where they struggled helplessly. Nora shrieked and the sound was throttled in her throat.

Van-Darcy fought to help the girl, shuddering at the slimy feel of the thing which twined around his own throat. It was like a hand, but a spongy, boneless hand. There was no crushing power in the grip, but it stuck to his flesh like adhesive. His arms were bound tightly to his sides by two long tentacles and warm, panting breath hissed in his face.

The three were carried in a long procession, and the chattering spread into a vast excited chorus, swirling around them. Finally the sound faded to a soft swish and patter as the creatures who carried them plodded silently into a dense black cloud, which completely blinded the Earth-men, even to the sight of their own bodies.

Van guessed that they had entered some sort of tunnel or building belonging to this strange invisible civilization.

His guess was soon proved when he was dumped roughly on a hard stone-like surface and his groping fingers struck against a solid wall. Quickly he felt his way to an opening, only to find it criss-crossed with solid, square bars of some metallic substance. He sighed and a frightened voice quickly answered him:

"Who is it?"

"Nora!" Van whispered eagerly.

Her feet pattered lightly toward him and he felt her hands fingering his shoulders; then her arms slid tightly around his neck. Van held her trembling body until the convulsion of fear had passed.

"Don't mind me, you two," remarked a third voice. "I can't see you."

"Rambeau?" said Van. "Well, at least they kept us together. We seem to be in some sort of dungeon."

Van had a tiny spot-lamp which he wore on his wrist like a watch, but the white beam revealed only the bodies of his companions surrounded by blankness.

He conducted a quick exploration with his fingers to find that the room was long and narrow, equipped with one bench and a table. There was a single door of solid metal and one large window, cross-barred.

"Well, there's nothing to be done about getting out now," he said, "and there's not much use trying to think about it with dull minds. Our best plan is to get some sleep so that we'll be fresh for whatever comes next."

The others quickly agreed. Nora was given the bench, and the two men stretched out side by side on the table. The air was thick and ill-smelling, but comfortably warm.

CAPTAIN VAN-DARCY came awake blinking into a brilliant violet light. He knew from the haziness of his mind and the stiffness of his cramped body that he had slept for a long time.

Obviously, the dungeon was lighted by sunlight streaming through the long window, because he could see Nora's body stretched out stiffly in a dark corner of the room. Then his eyes detected

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a blue-gray film in the background. He strained to see. It was like a twilight in the vague distance. Van rushed forward and collided with the stone wall.

"By Jupiter!" he muttered. "I'm beginning to see things!"

The noise of his movements woke Nora, who sat up, stretching. Her eyes lighted on Van-Darcy and the yawn on her lips broke into a scream.

Van moved toward her, but she screamed again.

"What goes on?" shouted Armand Rambeau, leaping to the floor.

Nora peered over Van's shoulder and another scream burst from her lips. The Captain swung around to face Rambeau.

"Holy Saturn!" he gasped.

Rambeau's body stood in the middle of the room, but there was no head on his shoulders!

A grunt issued from Rambeau's headless body and he staggered away from Van.

"What happened?" he whispered.

"Rambeau!" said Van. "You haven't any head!"

Rambeau's hands leaped up, feeling the empty space above his shoulders. "Are we all mad?" he demanded. "I can't see any head on your body, Captain, but I can hear you talk!"

They both swung toward Nora, their hands pointing at her.

"She has a head!" Van said.

Nora walked slowly toward Van-Darcy and her trembling fingers touched the vacant space above his shoulders, feeling the familiar outline of his nose and strong jaw.

"I can feel your head, but I can't see it!" she whispered. She repeated the performance on Rambeau. "What has happened to you two?"

Van suddenly snapped his fingers. "I've got it!" he shouted. "The sunlight! Rambeau and I slept with our heads in the sunlight. You, Nora, were in the shadow. Be quiet both of you, and let me think this through!"

Van sat down on the bench, his cupped hands grotesquely supporting an invisible head. Finally he produced his theory, restlessly pacing the dungeon:

"This business is not mysterious at all if you look at it scientifically. There are two ranges of color-rays which are invisible to the naked human eye. The shortest wave-lengths are ultra-violet, the longest wave-lengths are infra-red, and they are both invisible. In between them are the color wave-lengths that we humans can see—the blues, greens, yellows, and reds that form our color spectrum.

"Just because almost everything on the Earth is in a visible color, we take it for granted that everything in the universe is colored similarly. But why couldn't there be a planet with a peculiar color-pattern of its own—a pattern different from any other planet?

"Suppose the very substance of the planet, and the very flesh of its people, are ultra-violet in color! Suppose every tree and every building, even the very clothing they wear, is some shade of ultra-violet!

"I call this new color-scheme ultra-violet for want of a better description, but maybe there are color wave-lengths so short or so long that they form an entirely new color spectrum—a whole cycle of colors which are invisible to us!"

"Do you get the picture?" Van demanded eagerly: "Since our Earth-eyes are unable to see these ultra-violets and infra-reds, the entire planet and its people are out of our sight range. That's the reason this planet has never been discovered in the solar system—it is invisible to the people of our worlds!"

"That still doesn't explain how your head and mine became invisible," Rambeau protested.

VAN rubbed his invisible head, dubiously. "Well," he said, "it must be something about the atmosphere of the planet which filters only through certain colors. On Earth when you're sunburned, you turn red and then brown. On this planet when you're sunburned, you turn ultra-violet."

"I believe I understand you," Nora put in. "You two men have been sleeping with your heads in the sun for so long that you have absorbed this new ultra-

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violet color pattern into your flesh and hair. I can't see that color, so your heads are invisible to me."

"If these people have their own color system," Rambeau muttered, "why aren't we invisible to them just as they are to us?"

"I can answer that too," Van said. "Apparently the eyes of these creatures have a wider color-range than ours. They can see not only their own colors but ours as well.

"Well, if this invisible color is nothing but sunburn, why don't we get burned all over? Maybe, then we could be mistaken for citizens of this planet."

"I think not," Van said. "We aren't built enough like them. Their bodies and arms felt like something only half-human. I have a better idea. Do you seem to see a faint suggestion of purple walls, Rambeau?"

"Yes, I do—like a mist."

"Do you, Nora?"

"No."

"Good! Rambeau, those must be the walls of our dungeon. We are beginning to see things here, so our eyes must have absorbed something from the sun, even through closed eyelids! Let's try looking straight into the sunlight, exposing the eye-cones to direct light. If we can ever get to see our way around, we've won half the battle!"

WHEN Nora turned to a darkened part of the room to rest, the two men removed their outer garments, stretched out on the table, and stared into the violet glare of the sun.

They lay that way the entire day, changing their positions only to follow the movement of the sun, and pausing to lunch briefly on food capsules they had taken from the space ship.

The only conversation was Van-Darcy's lengthy theorizing about the people of this new planet. He suggested that a ship from the Planet System might have crashed into this unseen planet accidentally, and that the ghost-people had learned how to operate it successfully enough to travel to Earth. Being invisible to Earthmen, they could easily invade the country and conquer its people. Already they had added ten Earth ships to their supply and most of the Planet System's great leaders.

"You make it sound pretty hopeless," Armand Rambeau suggested. "Why don't we join the other side and get in on some of the gravy?"

"I always thought you were like that, Rambeau, now you've proven it," Van said. "And when this is over, I'll be glad to be rid of you."

"I take what I want!" Rambeau growled. "Why should I be loyal to Planet System? I've trotted around the universe so many times, I don't claim any planet for home."

Van kept his silence, and decided he would tolerate Rambeau only until they were all safely back on Earth.

When twilight suddenly snapped off the sun, Van-Darcy and Rambeau quickly sat up. The walls of the dungeon were clearly visible to them.

"It worked!" Van cried. "I can see!"

Rambeau's shout echoed Van's, and awakened Nora. She looked toward them, but all she could see were two empty uniforms standing by themselves. Her companions' sunburned bodies were no longer visible to her.

Van rapidly outlined their plan for escape. Then he and Rambeau sprawled on the floor in attitudes of death, and Nora started to wail and scream.

Soon she heard a sound at the door and the creaking of hinges. A guard stepped in, thinking that he was unseen. When he bent over the two men, each one grabbed a leg, and in a moment he was in a corner undressed and tightly bound.

The men studied his queer body. In some respects it was human. Half of the bald, oval head was taken up by huge, lidless eyes. The nose consisted of two tiny openings underlined by a slit of mouth.

The arms were, as Van had guessed, tentacle-like and sticky, with little suction-cups in the palms. The legs, like the arms, had no bone joints, but were thicker and more muscular. And the skin color was a deep purplish hue.

The clothing consisted of a tunic

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draped loosely over the body and tucked into a hood at the top. Van-Darcy quickly dressed himself in the guard's clothing, fastening around his waist a long, evil-looking sword curved like a question-mark and sharp on both edges. Van suspected that the looped end was designed to fit snugly over an opponent's head, and he would have liked to try it on Rambeau, but he postponed that pleasure.

Van directed Rambeau to stand guard in a dark corner of the outer corridor and take care of anyone who approached their cell. The captain then drew the hooded tunic down over his face and stepped into the gloomy corridor, lighted by a purple, phosphorescent vein in the stone walls.

"I won't come back until I've seen your father," he called back softly to Nora.

Van's opportunity came much quicker than he expected. After traversing a vast network of tunnels, Van-Darcy suddenly rounded a corner to come face to face with one of the guards.

The creature was surprised, but agile. His crooked scythe-like sword came swishing through the air at Van's throat. Van ducked and jerked up his own weapon. To his amazement the crook of his opponent's sword looped through his own and twisted it violently out of his hand. Van then threw everything he had into a terrific right cross. It was enough to drive clear through the gruesome face of his opponent, leaving the head a pulpy mass of purple fluid.

Van dragged his victim into a dark niche and searched him, but there were no keys on the body. He went from cell to cell peering into the shadows. Finally he saw a familiar figure in a corner. He called guardedly.

The answer was a weak gasp and the sound of a body dragging across the floor.

"Who are you?" cried a feeble voice.

VAN almost shouted aloud:

"President Reed!"

"You sound almost like Captain Van-Darcy, but that isn't possible!" the prisoner sighed.

"It is Van-Darcy!" the captain whispered. "I followed you in Armand Rambeau's ship. What have those devils done to you, sir?"

"Devils!" echoed Benet Reed. "I guess that's what they must be. They have tortured all my friends to death. I saw Vice-President Kagin die! Now I am the only one left, and Kagin told me that each new torture is worse than the last!"

"Why? Why do they torture you?"

"They want the secret formula of our devastation ray. Only five men in the Planet System were allowed to keep the secret. We held it as a last resort in case of danger. Four of the men who knew the formula are dead."

"How did they know about the ray? How do they talk to you?"

"They have one poor devil from Earth who has learned the language of Goor. Goor—that is what they call this planet. They force this Earth man to act as translator. He crashed here accidentally years ago, and it was his ship that they used to invade Planet System.

Van-Darcy's mind churned with wild schemes for a rescue. If there were only some way to disguise himself!

"How much time do I have?" he muttered.

"And hour maybe. They only give me these resting spells to keep my mind conscious. They seem to do everything on a scientific time schedule. I've been able to tell time, because they let me keep my wrist-watch. They took everything else away, but they left my watch."

"What was it made of?" Van asked eagerly.

"Gold."

"Could you let me see it, sir?" Van said excitedly. "There's a little peephole about four feet up. Could you reach your arm through it?"

"I'll try."

President Reed dragged himself over to the door, and held up his arm. Swiftly Van unclasped the tiny gold band from Reed's wrist.

The watch was a thin strip of metal, with the face hidden by a hinged flap. In the bluish light the gold faded almost

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to invisibility. Van flipped on the tiny flashlamp clasped to his own wrist. The white light stabbed brilliantly through the gloom, reflecting brightly from the President's watch-band, which was green gold!

When Van had retraced his steps to his own cell, he found the corridor empty. He stopped into the room and a small body fluttered up from the dark wall at the sound of his footsteps.

"This is Van—don't be frightened," Van-Darcy said.

"Father! Have you seen him?" Nora gasped.

Van detailed his excursion, leaving out any mention of the president's condition.

"Where's Armand?" he asked.

"I don't know. He must have followed you."

"No he didn't," Van snapped. "Well, I guess he's cutting his own throat. Nora, have you your make-up kit with you."

Nora reached into the deep pockets of her uniform. "Yes. Here it is. I don't know why. I guess I just dropped it in the pocket by force of habit when I changed clothes in Armand's ship."

Van-Darcy sighed. "Thank the holy stars for that!" He quickly checked the contents of the kit, and clucked gleefully when he found the small box of gilt powder, which mixed with water to form a brilliant gold hair paint.

A half-hour later Elko Van-Darcy stole softly through the long deserted corridors of the dungeon. He pausd to run his flashlight over the gleaming surface of his body. To another human being he would have appeared to be a ballet dancer covered with a mixture of gold hair paint and green nail polish!

Van noted how carelessly the dungeon was guarded; these Goor people seemed to trust the protection of their invisibility!

Suddenly Van stopped short. The door of Benet Reed's cell was wide open and Reed was gone. The body of the guard with its mangled face still sprawled in a dark corner, but the tunic and hood had been removed. Rambeau must have passed that way!

Van dashed ahead following the tunnels which were most grooved from long wear. Finally he was stopped abruptly by a door and beyond it he heard the monkey chatter of the ghost people. He knew it was win or lose on his desperate hunch, so he stepped boldly into the room.

The door creaked and directly in front of Van a dozen ugly, hooded heads turned their baleful eyes in his direction, but there was no sign of alarm. One of the creatures strolled over and closed the door, brushing past Van without a glance in his direction.

VAN felt like shouting in triumph. His trick had worked. Now he, himself, was the invisible man! He could give these phantom devils a taste of their own medicine.

He sized up the situation in a glance: The room was fan-shaped, a sort of amphitheatre, made of luminous stone that gave off a brilliant glaring light. Van was standing in a small space that might have been a stage. A half-circle of stone seats climbed up, tier on tier, towering as high as thirty feet above the stage floor, and every row was jammed with hideous ghostmen.

The star of the drama seemed to be Benet Reed, who was lashed to a flat, metal frame.

There was another Earthman standing at Benet Reed's head—a twisted, dwarf body with shaggy white hair and beard. Van guessed that this was the interpreter, for he was urging Reed to talk.

"This is your last chance," he whispered. "If you refuse to answer, they will tear you to pieces!"

Neither of the Earthmen could see Van as he skirted the circle of Goormen.

Benet Reed lifted his head defiantly.

"I will never tell," he said.

The creature nearest him hissed a stream of queer sounds and yanked out his knife. It was the last act of that Goor man, for he was suddenly jerked off his feet and hurled violently against

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the wall.

The other creatures scuttled around on their long tentacle-legs, crawling over each other in wild confusion, unable to see their attacker. Van grabbed one of them by the gummy tips of his feet and swung him with a sodden thud against his neighbor.

The audience was in an uproar, and guards spilled through a side door to the stage, chasing in excited circles, but their Goor eyes could not see Van's green-gold body.

Van grabbed a sword from one and cut the bonds that held Benet Reed. When he slung the President's limp body over his shoulder, the scrambling guards seemed to sense that Van was only one man with a single sword dangling in his invisible hand.

They formed a line between him and the door, and one of them swung his sword like a scythe at the seemingly blank space under Benet Reed's body. Van parried it awkwardly with his own sword. If it weren't for that loop at the end, he could duel with a thousand of them!

They were cautiously darting in two at a time now, trying hook his legs. Van glanced over his shoulder. At his side the gnarled interpreter was brandishing a sword.

"Can you fly a space ship?" Van barked at the Earthman.

The man whispered his name. It was the name of a legendary hero—Virgo Kane, the great space explorer.

"I'm going up through that mob!" Van shouted above the gale of voices. "When they chase me, slip out that side door, and try to get to one of the ships."

Van lunged out, cutting viciously at the line of guards, and two heads toppled off. He turned and made a running leap up to the first row of spectators, which melted frantically out of his path. He charged up the center aisle, slicing right and left with the hooked blade.

At the top of the tiers of seats Van pounded his way through a wide doorway. Outside he raced swiftly along a path, and the Goor men scattered at the sight of Benet Reed's body catapulting through the air on Van's invisible shoulder.

At a corner a tiny body darted into his path.

"This way!" shouted Virgo Kane, guiding Van through a maze of streets to the space ships.

They quickly overpowered the guard around the space ships and smashed the instrument boards of all but one. Van ordered Virgo Kane to cruise the last ship over the city, watching for a signal from Van's flashlight. Then, armed with his sword, Van set out alone.

FOLLOWING Kane's direction, Van quickly found the way to the city dungeons, and raced through the deserted corridors to Nora Reed's cell.

The door was open and purple light from the outer hall washed into the cell. From a corner came the sounds of a struggle. In the dim light Van could see Nora Reed's bare arms trying to beat off a hooded figure that crouched over her.

Van leaped, kicking at the thing's head, but his foot glanced, and the body surged upward spilling Van over. Van lay there quietly until the robed body groped toward him. Then Van's arm suddenly came looping up and his sword hooked around the hooded neck. He lunged backward, jerking the sword, and the head toppled crazily on limp shoulders, then tumbled out of the hood and rolled across the room into a corner.

Van groped into the corner, found the dismounted head, and rolled it up in a strip of invisible cloth. He carried it under one arm and caught Nora up with the other.

The wild chase through invisible streets passed through Nora's mind like a nightmare, and she did not come fully to her senses until a long, gleaming ship and swooped down beside them and she was placed in her father's arms.

The ship rocketed swiftly toward Earth under Virgo Kane's expert hand. Van-Darcy slipped into a space uniform, but he left the greenish-yellow paint on his face, which would otherwise be invisible to the Earth people.

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BENET REED sat with Nora's head resting against his shoulder and stared at Van's queer make-up.

"Nora has tried to explain all this color business, Van," he said, "but I still don't see how you made yourself invisible to the people of Goor."

"Well, it was a lucky hunch," Van explained. "When you said they overlooked your wrist-watch, I realized that they passed it by because they didn't see it. And it was green-gold in color."

"You see," he continued, "those Goor people are invisible to us because their coloring ranges deep into the ultra-violet wave-lengths which ordinary human eyes can't see. It occurred to me that, if humans have a blind spot, those ghost people might have a blind spot too. The problem was to find a color with a wave-length which was invisible to them.

"I remembered that the seven primary colors form a spectrum or cycle, in which each color merges into the next one. It was a good guess that the blind spot of the ghost people would be on the opposite side of the cycle from ours. If you look at the color spectrum, you'll find that the exact opposite pole from the ultra-violet, infra-red pole falls between green and yellow — in other words, green-gold!

"The next problem was to make myself that color. I knew the only place in the Universe to find every color of the rainbow in paint form is a woman's make-up kit. Your daughter is a typical woman, thank the stars! It was her make-up that saved us!"

Nora looked up at Van's glistening face.

"When can you take that paint off?" she asked.

Van grinned. "I don't want to look like a headless body. I think that invisible ghost-color will wear off my skin just like sunburn."

Nora gave him her hands. "I hope so. I've had enough of invisible men!"

Suddenly Nora stiffened.

"Armand Rambeau!" she gasped. "Where is he?"

"Holy Saturn, didn't you know?" Van exploded. "We had to leave him behind."

"You deserted him!" she accused. "You left him to die!"

Van grasped her shoulders.

"You don't believe that!" he said. "Armand was the deserter. I left him to guard you and he deserted his post! There was no time to search for him. It was a choice of risking your father's life for the life of a deserter!"

Van picked the bundle he had carried from the call. "You can't see this," he snapped, "but it's a head—the head of that horrible ghost-thing that attacked you. I brought it back as a specimen for scientific study. Do I have to tell you what might have happened to you if I hadn't returned in time?

"Armand left you to the mercies of the Goormen. But if that's the sort of man you love, we'll turn back and save him, somehow."

Nora's warm lips silenced him. "No, that's not the sort of man I love, Van," she whispered.

Van drew her close to him, and the bundle dropped from under his arm. The invisible head rolled from its protecting hood, sitting upright in a corner. The others could see nothing, but Van's eyes over Nora's shoulder could still see the ghostly colors of Goor that had burned into the face. He could see the deep-set eyes and the long, pointed nose which he had not seen during that struggle in the darkened dungeon.

It was the head of Armand Rambeau!

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(Continued from page 10)

teresting part of your magazine for long—the letters from readers and the repartee of the Sarge. Now I've gone over my files and enjoyed them. So I venture to stick my tongue out at a few things and praise others, and offer some suggestions.

Gene Hunter is a pee-lot asking for trimmed edges in a number of SF mags, including Sept. '42, STARTLING STORIES. Very esthetic idea; but not nearly so desirable as requiring your binding room to put more staples in each magazine.

Say! Why not get out an annual and put all your Hall of Fame reprints in that? Use the present space for Hall of Fame in STARTLING STORIES for more Amateur Contest stories. What?

Yes, Wm. Morrison did a fair job in "Two Worlds to Save" (Sept. '42.) Why must salvation of one or more worlds be necessary to write interesting SF that also makes one think? If it takes two worlds now, it'll take two galaxies soon. What? You're a chemist. Why not figure out how an interplanetary armada could use tricky explosives like—well, like the one made of iodine crystal and ammonia, for instance? And artificial skunk-oil bomb (Butyl Mercaptan) might win the war over races of intelligent extra-terrestials having acute sense of smell.

The cover of Sept. SS reminded me of the Dance of the Dragon, put on by American Chinese, about China New Years—here on the Pacific Coast. "Meteorite Enigma," by O. F. Jerome, invaded Cummings' field of Microcosmic in a new way. Wonder Meteor, what?

Now for Ross Rocklynne's "Day of the Cloud" (No. '42). After bracing oneself to swallow the impossible Time Machine transition, one can sit back and enjoy it. Rocklynne has been better, however. So don't pay too much attention to pee-lots who always think everything the very best, Sarge. Even a protoplasmic monster would eject a hunk of indigestible dirt—so they just hope to get in the Ether Vibrations.

Millard's "Earth Saver," of Nov. SS was enjoyably humorous. Wonder if the Old Sarge is affected by his Xeno that way on holidays. "The Death Ray" (Henry Lewis, Nov. SS) is an example of the kind of shorts of new stuff we could have more of—if no reprints were used.

You are right, Pee-lot G. Ebey. Some of those early SS classics do stick in one's memory as good; but, if good enough to remember, it's still not desirable to see in SS again as a reprint. A mere glance over a good reprint, and one remembers the whole tale. And poor tales don't deserve to live again—even in annuals or book form. Original artist sketches good, as prizes for letter writers, is also Ebey's suggestion.

Robt. Moore Williams put a certain pleasing plausibility in his "World's Beyond the Sky" (Jan. '43), that is not found in many similar stories. The Roumi reminds us of early legends of Ancient Wise Ones—of ancient Atlantis and the sunken continent of Mu. Now, do you have a story worth buying in book form to give as birthday gifts to friends?

Hi-ya, Femme Pee-lot L. Kessler. Glad a few gals like something besides confession tales.

In closing, I vote to keep all depts. going.—**Fresno, Calif.**

Quite a chatty letter, Kiwi Kincade. Glad you discovered THE ETHER VIBRATES department. But what's all this about stapling? All our magazines have double staples. Maybe you got hold of a copy that slipped through the binder on an imperfect job. This won't likely happen to you again in the next ten years. So, zipper up your space suit and get back on the beam. Here comes another one of those pee-lots who wants a good trimming.

TRIMMED EDGES

By Thomas Regan, Jr.

Dear Sarge: Picked up the January STARTLING STORIES, and what do you think I saw? Another cover by Belarski. Gad! How come the old Sarge lets him and Bergey do all the work?

I glanced through the Ether Vibrates and did I see a letter that really got me mad! Listen, Mr. Johnston, there are at least seven S-F mags on the market that have TRIMMED EDGES, and about twenty western and detective mags that have them also. STARTLING STORIES could have them if the old Sarge wasn't so set in his ways. And that crack about buying the mag to look at the pretty pictures. Listen, bub, take a look at the Nov. ish, and if you think there's anything pretty about it, I think you need glasses, and just because you're an old man with a big gray beard, don't go bragging about it. I'd better stop here or the old Sarge wouldn't like the language I feel like using.

But to get on to the stories and forget Mr. Johnston. "World Beyond the Sky" was really a swell novel. Have three good novels in one year and, brother, you're doing darn good. "The Green Torture" was an excellent choice for the Hall of Fame.

As to the rest of the shorts, they were fair.

Schomburg's illustrations were perfect. More of him and less of Morey, please. But how about one full page pic for every ten pages in a novel?

Before closing I would like to put in a plea for a novel by Binder or Hamilton.—**138 Townsend St., New Brunswick, N. J.**

Before the old Sarge chokes on his wad of Beta-gamma gum (whatever that is, I buy it at the cigareel counter of the Spacemen's Café and use it to patch cracks in the starboard rocket sleeves) I want to know who started this argument on trimmed edges. To the best of my knowledge the old Sarge has never raised this issue since entering the control room. Isn't that something like gilding the lily?

You kiwis lay off the edges before you slip and roll out into empty space and somebody gets a real trimming. Or—on the other hand—go ahead with this bone of abstract contention; it will keep some poor devil of an author or artist from getting a panning.

COVER RELAPSE

By Jack Gavin

Dear Sarge: In view of the last couple of covers on STARTLING STORIES, and on TWS, I had come to the conclusion that you were actually trying to improve them.

Has the laughter died down? All right, I'm sorry. I'm new at this. I was innocent. I didn't know the facts of life. I didn't know about the mad geni who runs your art department.

For those two wonderful months, I was a new man. Well, oh all right then, I was a new boy. My cheeks brighter, my blood started circulating again. People didn't scream any more when they saw me. That is, if they didn't look closely.

It was wonderful. Oh, but then, oh, woe, I had the misfortune to look at the so-called March cover of STARTLING STORIES.

There it was in the magazine rack. Quickly snapping my sun glasses on, I grabbed it and ran out of the store. I didn't have to pay the man for it. He was glad to get rid of it.

From all of the above you may have come to the conclusion that I didn't like the March cover. You're right. It was a mess. Women screaming, man rushing at women with terror-stricken face, great big devil grabbing at women, and other man jumping around trying to get his iron hat off. I repeat, oh, woe!

The novel was all right though I didn't read the other stories. I never do. They're never any good.

I don't see why you don't leave all those shorts out. Then, besides the novel you could have a Hall of Fame novelet. Don't tell me that CAPTAIN FUTURE uses reprint novelets. I know that. But I don't feel like waiting for a quarter of a year to continue a story, and, anyway, I usually don't like CAPTAIN FUTURE.

Science Fiction Readers of the area around Troy, Albany and Sch'dy: Larry Shaw and I are trying to start a fan club around here. How about writing me a letter if you want to join?

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We figure somebody must buy all those stocks of magazines that we see in all the stores. We're nice people. We won't eat you. So how about getting in touch with us? If you don't like the idea later on, you can always quit.

The letter column was better than usual this time. The letters were almost as long as your replies to them.—**413 First St., Troy, N. Y.**

So you think the old space dog rambles on at too great a length, kiwi? Well, never mind about that; let's consider your cover criticism. Do I have to tell you junior astrogators every issue that we are not going to give you the same kind of cover all the time? The March cover was a symbolic painting to fit the novel, SPEAK OF THE DEVIL. And where did you get all those characters you peopled the cover with? There was only one woman, the heroine, and one man, the hero, with a heroic-sized Devil in the background. You haven't been sniping on my Xeno jug, have you?

Snap out of it, Kiwi Gavin. Your ethergram makes you seem as out of date as an outpost on Pluto awaiting mail from home. CAPTAIN FUTURE formerly ran serials, not novelets, as Hall of Fame Classics—and it doesn't do that any more for the very reason you mentioned; it is too long a wait between installments. I hope you get the new fan club started—so the other pee-lots can bring you up-to-date on your information.

But in all seriousness, Kiwi Gavin, best of luck with the new club.

RATINGS

By Dick Dolan

Dear Sarge: Here's my ratings for 1942:

(1) "Blood on the Sun"
(2) "Tarnished Utopia"
(3) "Day of the Cloud"
(4) "City of Glass"
(5) "Two Worlds to Save"
(6) "Devil's Planet"

"Speak of the Devil" had practically nothing to do with Scientifiction. The only thing that kept me reading it was the laughs. I'll nominate it for the best get-away-from-worry story I've read.

The cover was worth around 1 xeno jug. At least the femme had some uncut clothes.—**Sheridan Circle, Chicopee Falls, Mass.**

Glad you liked SPEAK OF THE DEVIL, Pee-lot Dolan. There is another book-length novel coming up by Author Norman A. Daniels which you may like even more. Watch out for THE GREAT EGO, a different kind of a startling novel. And here's a tip for all you kiwis: THE GREAT EGO is to be illustrated by Virgil Finlay. How's that for news?

NUTS TO THE GOOD OLD DAZE!

By Austin Hamel

Dear Sarge: Once upon a time I went up to the newsstand and asked myself what it will be this time. Hidden in a dark corner was good old S.S. I blew off the dust and bought it! I thought it was silly, but I read it and, yeah, I liked it and bought more and more. And now I've bought enough to write you a letter.

You know, I got pretty good peepers, but when I read Hall of Fame classics, well, they just get crossed. To make it short, why can't the Hall of Fame classics' print be just a little bigger? The only thing that kept me reading "The Super Velociter" was that it was fairly good!

Say, I'm pretty impatient waiting two months for S.S. to come out. Why don't they make it a monthly? Huh?

You know, the guys who bark at you make me sick, like I drank every jug of Xeno there is. By the way, what does Xeno taste like? Or does it? Getting back—if they must bark, why not something sensible, or can't they think of it? Next time you guys decide to moan, dip your head in a case of Xeno. Maybe it'll help.

Now about the March mag. Here's the Ingeroo parade—

1. "Speak of the Devil." That was pretty good and slightly funny. It scared me the most at the last page. 5 Xeno jugs.
2. "The Super Velociter" by Carpenter. It was all right. 3 Xeno jugs.
3. "The Great Invasion" by Morrison. He is improving. Keep it up. 2 Xeno jugs.
4. "The Glory Flight" by Long. What in aruz was glorious about that story? We shall close the discussion!

To all you guys who are complaining about this and the good old days: Once in a while the stories were good, but you and your horse and buggies can stay there; I'll take today's stories.

To Pilot R. E. Gies: What did you say about too much space talk? There's not enough of it. Where's all the science in the stories? After all, this is a science-fiction book. I think.

Oh, well, so long. All I can say is, keep up ethergrams for a good mag, Sarge.—**New York, N. Y.**

The only thing I question about your ethergram, kiwi, is the dust on S.S.

Sorry you find the Hall of Fame stories a bit fine of type, but you see that permits us to crowd more stories in the issue.

COVER VARIETY

By Clinton Blackburn

Dear Sarge: Say, why don't you give your address in a little box at the beginning of the Ether Vibrates so a new fan will know for sure that you are getting his comments when you don't print his letter?

The stories this time seem to be a little better than usual. The novel rates 5 xeno jugs. It is among the best stories I've read. Among the shorts, "The Gladiators" head the list at 4.7 xeno jugs with "The Green Torture" a close second at 4.5 xeno jugs.

Something happened to STARTLING STORIES this issue, and something rare. It was good all the way through. Even the cover was passable. Schomburg walks away with all honors in the inside illustrations.

The Ether Vibrates: I notice that Gene Hunter is always strong for trimmed edges. He isn't the only one. I say trimmed edges will do more for science-fiction now than any other one thing. A. C. Johnston, nobody said that we weren't thankful for the magazine. Hint to the Sarge—take heed of what C. Franklin Derry had to say. He gave some good advice for improving S.S.

You seem to be in a rut on the cover pictures. Bergey and Belarski are usually good, but don't you think they get tiresome after a while? The fans want more variety on the cover.—**St. Anthony, Idaho.**

Grab your rocket wrenches, kiwis; here we go again—on trimmed edges. Our address? You'll find it on the contents page in every issue. Now, a flash from a Flushing, N. Y., reader.

WITH LOVE

By A. R. Brown

Dear Sarge: Well, here it is, the Jan., 1943, issue of SS Fanfare.

1. "World Beyond the Sky"—3 plums (This is a steal so I apologize to Mr. Clarke for it, please) 'Tain't original but fair-to middlin'.
2. Shorts (collectively)—1 prune. They should be consigned to the well-known you-know-where. Shame!
3. "Green Torture." So this is representative of the "Good Old Days." Not by a long shot, bud, but I'll be considerate—1 plum. No, make it 2 plums.
4. Cover—One Belarski. There is no comment.
5. Art—Hey, that's not fair! Wonder of all wonderful wonders, 4 ripe, juicy, gloriously purple plums. Schomburg caused my eyes to bug out; he's improved a hundredfold. And Morey? Well, well and some more well!

Issue on the whole (including above ratings) is worth 3 plums and 1 prune. Get the prune!

Now we have arrived at The Ether Vibrates.

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This time it vibrates much, yea, very much better. And your answers, why, Sarge, they (an earth-shaking phenomena, feel it, fellas and gals) are actually readable.

The next issue looks promising, in fact, it may, perish the thought, be, shush, ORIGINAL!

With the above drops of wisdom which have dropped from my golden pen, I am for everlasting lov—oops wrong letter.—**139-09 34th Rd., Flushing, N. Y.**

See here, Kiwi Brown, where do you get all these prunes you are dishing out? You'll have to quit reading Dick Tracy. Or was it THE FACE OF THE DEEP in CAPTAIN FUTURE, and you swiped a handful of the wrinkled fruit from the engineer? Anyway, your ratings make things easier on my Xeno stock.

FIRST REPORT

By George Drucker

Well, Sarge, this is the first letter I've ever written to S.S. You see, I never could get up enough courage even though I have been reading STF for about four years now. I think STARTLING is the best mag. on the market. But now for rating the stories.

"World Beyond the Sky"—4 xeno jugs
"Forgotten Past"—2½ xeno jugs
"The Green Torture"—5 xeno jugs (terrific)
"The Man Who Was King"—3 xeno jugs
"The Gladiators"—2½ xeno jugs

Of your special features "The Ether Vibrates" is the best, and "Thrills in Science" is the second best.

Concerning the cover, don't you know yet that we anti-BEMs are a powerful group? That's not a cover befitting a STF mag.

On the whole the inside drawings were a little above fair.

Sarge, can you tell me if I can get any of those fan publications by mail?—**4713 8th Avenue, Brooklyn, New York.**

Bless your heart, Pee-lot Drucker. You make out a nice first report, and you can enlist with the black gang in the astrogation chamber at once. As for your inquiry about fan magazines, can't you just hear the editors drooling over you? Simply write to any of the publications—you will find their addresses listed in the Review of Fan Magazines depart-

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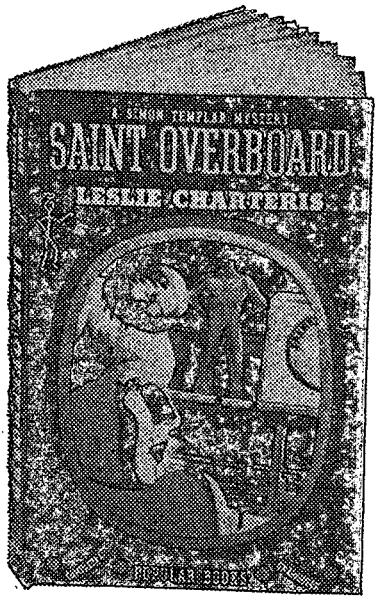

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ment—and you will receive all the copies you can pay for.

Hang on to your gravity belts, children, here comes something in the vague nature of a communique from Gene Hunter. Oh, sure, the old Sarge will listen.

APOLOGIES AND STUFF

By Gene Hunter

Dearest Space-warp: Except for the cover and the interior inferiors, you've hit a new high with the January STARTLING.

I've read a good many of the trans-universal yarns, but none ever struck me so forcibly between the eyes as William's **World Beyond the Sky.** It really set me to thinking. Is it not possible that beings from another universe on the same plane as ours could have visited our world, beginning many weird and unfounded legends that still persist in the twentieth century?

But to get on with 1943's first STARTLING STORIES. Not a single lemon. William's intriguing yarn was, of course, first. In second spot I put **The Gladiators.** Neat. Human interest stuff. Third rates **Forgotten Past** closely followed by the Hall of Fame reprint. **The Man Who Was King,** while fifth, was still a great story.

The interior pix, for a change, were acceptable. Schomburg is good with a two-page spread, but when cramped looks just that—cramped. Marchioni was fair, and Morey for **Forgotten Past** was good, but poor for **The Gladiators.**

All facts considered, the cover wasn't so bad either. Belarski is excellent for THRILLING WONDER of December. Can it be possible he is going to develop into a top-notch paint smearer?

I guess I kind of pulled some boners in that letter in the January Ether Vibrates, eh? So Wells wrote **Blood on the Sun** instead of Jarvis. Well, I admit I'm wrong. Also I want to apologize publicly for calling down the pride of Idaho, Paul Carter, as I did.

Paul immediately wrote an explanation, and it seems I'd twisted the facts of his letter a bit. So we ain't not a-feudin', see, Wart Ears?

Sergeant Saturn seems to be improving his inter-stellar lingo. It's still bad, though. But at least, as one fan puts it, you're not repeating the same puny puns every third or fourth letter.

I happened to pick up the Winter CAPTAIN FUTURE the other day, although I'm not a regular reader. I haven't gotten around to reading it yet, and by the time I do, the letter concerning it would be too late, so I'll just take this chance to congratulate Bergey on his best cover except the Nov. STARTLING. It was wonderful!—**616 E. McCarty Ave., Jefferson City, Mo.**

Well, that wasn't such a terrible blast, after all. But what do you know of the interplanetary language, Pee-lot Hunter? If the old Sarge were to let his hair down really and start talking in the fifth tongue of the Marlurian dialect—neither one of us would be able to make any sense of it. And stop calling your senior officer Wart-ears, you space-warp. See? Look what a nice, refined kiwi is sitting right next to you.

FOR A CHANGE

By Richard Hirschfeld

Dear Sarge: Just for a change this is going to be a straight letter. No cracks. That is, at you.

The cover was by Belarski. I won't blame you, Sarge. It was better than Belarski usually does. A little less than fair. I liked Bergey's cover for the Nov. issue better. Lately S.S. has featured too many humans on the cover. It's disgusting.

As for the novel it was much better than usual. Williams certainly turned out a fine piece of work. I notice that in the last seven or eight issues that the title of the novel deals with the sky in some way or another. Contradict me if I'm wrong.

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Oh, say, I forgot to mention the interior illustrations. It was pleasant to see Schomburg again. Let's have more of him. Give him more rocketships, strange machines, people, etc. to draw. I'm sure he'll give a much better account of himself. I'd like to disagree with Mr. J. J.; in fact, I think I will. Morey is as old fashioned as the horse and buggy. (But come to think of it, I imagine a lot of people would be glad to have a horse and buggy. That is, when their tires are all shot.)

But getting back to the stories, I find that the Hall of Fame story was really undeserving of the 4½ pages it occupied. In plain simple language—there was nothing to it. The best short in the issue was "The Gladiators" by Walt Dennis and Ernest Tucker. The best short you've had in quite some time.

Sarge Saturn's column is good. In fact, I'd say it was excellent, if it wouldn't puff the old windjammer up.—**1801 Grand St., Alameda, Calif.**

So that's your idea of a nice letter, eh, Peelot Hirschfeld? And don't you think you've a slight dose of "space eyes" in your comment about the sky being embodied in the last few novel titles? The stories certainly haven't been about the same thing at all. As for the matter of sky—well, that pretty well covers everything, doesn't it?

Wait! Put down that rocket jet until I slip over the curve of the horizon. And some space harpies don't agree with you about this department. So, there, too!

At last we have sweated our way through the ethergram spindle to reach a few hot flashes on the March issue. Have a look at this explosion.

SATURN—A COOLING PLANET

By Neil Crandall

Dear Sarge (you old space zombie): I am writing this in the fond hope that you blow out a few gaskets when you see it. However, I also intend to make a few criticisms of good old STARTLING STORIES. To begin with, I didn't think much of N. A. Daniels' SPEAK OF THE

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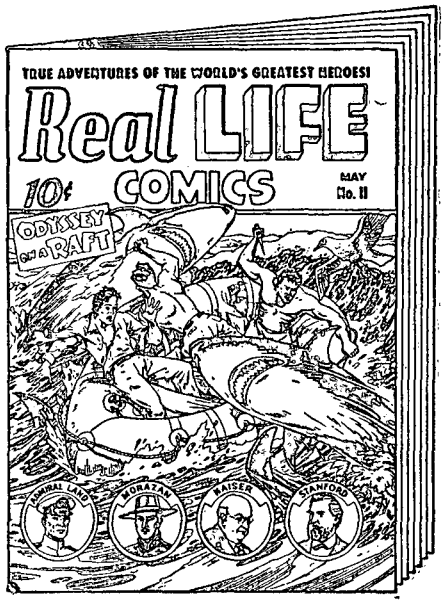

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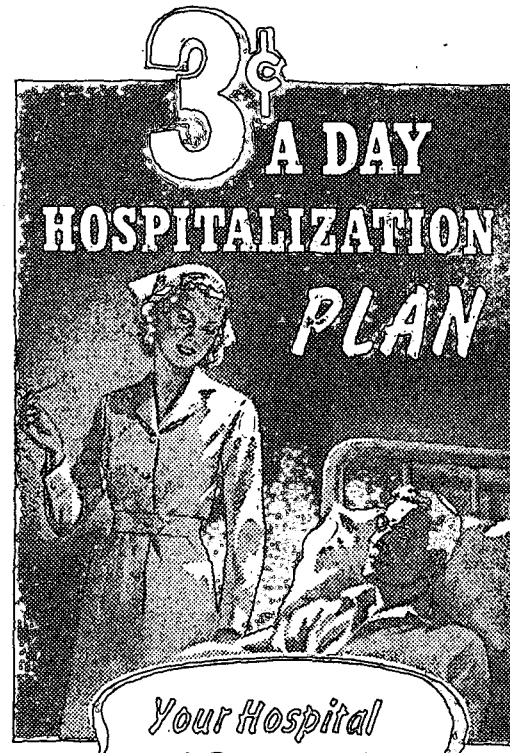

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DEVIL! I am forced to admit that it was rather good writing, but it was not real science-fiction, and therefore it did not belong in S.S. The only scientific part was where Alex made contact with the devil by means of the thought-intensifier, and that was covered by extremely brief discussion.

Now to get on with the rest of the issue. Ranking next to SPEAK OF THE DEVIL, is, THE GLORY FLIGHT, an excellent short. As for THE GREAT INVASION, the less said the better. And the Hall of Fame (so-called) Classic, ooh! I gasp, I choke, I groan, (no don't be so hopeful, I'm not going to die) when I first saw that title—THE SUPER VELOCITOR. I thumbed with great agility to page 108, and with eager expectation, read the story.

If you will please excuse me for saying so, that story is one of the corniest, hackiest, bits of so-called science-fiction that I have ever had the misfortune to scrutinize in my short stf. career. Well, in order to tear myself away from that crime, I turn to the art work.

The cover was fair, in fact, better than usual, by which I mean that the covers are not usually very good. As for the interior art work, what there was of it, it was poor. Since THRILLING WONDER STORIES is sponsoring the Amateur Story Contest, why doesn't STARTLING STORIES sponsor an amateur art contest? In my opinion, it would certainly be well received by the readers.

And now, Sarge, comes the last straw. You, dear old Sarge, are slipping! Your brilliant, vituperative remarks are losing their edge! Better stop hitting that Xeno jug so much. If those insipid, moronic, non-intelligent, individuals who are hounding you to cease your, quote (childlike) spacetalk are responsible for this, may they be boiled in Xeno! What a fate! Personally, I get quite a kick out of your spacetalk. Well, Sarge, you old Xeno-guzzler, I can't think of any more insults so will let the ether cool down.—**314 North 33 St., Omaha, Nebr.**

Kiwi Crandall, you leave the old space dog a bit choked up with your outrageous impudence. The idea of Sergeant Saturn slipping, indeed! Of all the insulting things to say!

Did you ever tell a mule skinner that he didn't know how to cuss? It's the same thing. How in the superannuated region of celestial gall do you arrive at that ether-warped conclusion? What point in the old Sarge heaping a lot of rocket dust on kiwis who don't get out of line? Only when the long-ears set up a braying chorus does the old space dog take down his rocket spanner and roll up his sleeves.

Now, you climb back into your cage and hunt for fleas and leave the corralling of this space gang to the chief astrogator. If you space harpies want the old space dog to bark, give him something to snap at.

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FAREWELL TO ART

By George Ebey

Friend Saturn: Why do you continue to clutter up STARTLING covers with those dull and meaningless Bergey Blotches? Is EKB your only artist?

And don't put me off with the aged standby that you aren't responsible for the amateurish cover paintings. **Somebody** is to blame. Perhaps if you relayed the complaints on SS artwork to the art editor we might get some action —and a decent cover.

What's wrong with the March effort? Specifically, I object to the background, the foreground, the people and the machines. (Doesn't leave much, does it?). Background: broad band of brown, narrow band of green, big blotch of red, small blotch of yellow, delicately tinged with green. Foreground: large asinine devil with **blutlust** grin. Man. Women. Women is Bergey Type 3qX, Man is type 15.

From a distance all this dissolves into meaningless hunks of bright color. Not that I have anything against color, but why, why don't Bergey's colors ever harmonize? Is there any truth to the rumor that the printer puts in the color for SS paintings?

Why don't you, Sarge, paint the covers?

Enough of the cover. Let us surge on to something even more revolting: the Astounding (?) Complete Novel, By Norman A. Daniels.

Before we start I notice that a person named "Marchion!" has been doodling around in the interior. I suggest you restrain him in the future from such mutilation.

Norman A. Daniels may be a new author to stfiction, but he certainly chooses the oldest of themes for his debut. The story is smoothly told, but the same kind of smooth writing may be found in dozens of non-stf mags. Down with such hack.

Shorts: hmmmm, there's been a slip-up somewhere. How did a good Orban illustration slip by? You had better boycott this Orban fellow as he may corrupt the rest of your scratchers into turning out some passable illustrations. Which would ruin the whole tone of the mag.

As regards the stories, it seems that Morrison has turned from hack hack to hack humor. You tell me if it's an improvement. Long is slightly less confusing than usual. I could say something nice about "The Super Velocitor," but you get credit only for reprinting the story. Take that crumb, crumb, and be happy.

I shall ignore all departments but **The Ether Vibrates** and the fan mag reviews. The former is peculiarly good with dogfan Mace carrying off the honors and B. Stoy trailing close behind.

Fmz reviews are still tops, tho I wish you would read the mags a bit more closely.

There has been some argument of late as to the best STARTLING booklengths. A few individuals have actually set down what they consider the ten top novels. I tried this myself, but found that after the number "3" the only way to differentiate between the rest was by ranking some as worse than others.

However . . .

1. "The Black Flame"—Stanley G. Weinbaum
2. "Fortress of Utopia"—Jack Williamson
3. "The Bridge to Earth"—Robert Moore Williams.—**4766 Reinhardt Drive, Oakland, Calif.**

The main thing I gather from your broadside, Kiwi Ebey, is that you think the fanzines contain the kind of reading matter which

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should engross the old space dog's time and interest and that we are paying out hundreds of dollars per issue for kindergarten art work.

Get a bucket, one of you pee-lots. There's going to be a bit of blood-letting just about here.

Let's take a deep breath and take up Kiwi Ebey's gripes in the order of their appearance. First, is Bergey our only artist? This naive query because the cover under discussion happens to have been dished up by Earle Bergey. Had it been a Marchioni, a Belarski, a Wesso —or anybody else, we would simply substitute the proper artist's name in the blank space and carry on from there. Before I insert the needle, kiwi, I will answer your so-called question as best I can. Yes, Bergey is the only artist who worked on the March cover. And I've no doubt that he painted in some stuff that the old Sarge can't see. For you are the second junior astrogator to complain of the *women*. Honest to space imps, I'll swear that I can find only one woman on the March cover, and I've been drinking Xeno steadily since eight o'clock this morning. What goes on here?

Why don't Bergey's colors harmonize? Confidentially, kiwi, he works only with the colors of the visible spectrum. He hasn't got up to the ranges of the ultra-violet, yet.

Why don't I paint the covers? Small talk, likewise, small stuff. Sergeant Saturn paints the whole town.

Before I chain you back in your proper cubicle I will point out your choice of three novels. Quite a nice choice. But you couldn't find any others? Well, the old Sarge doesn't feel like dragging out the coup de grace—so I will just refer you to the next ethergram coming up.

[Turn page]

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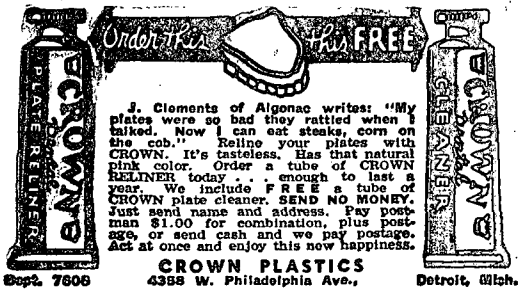

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PLENTY OF GOOD NOVELS

By Chad Oliver

Dear Sarge: Having finished the March SS, I am forced to admit that it was surprisingly good. Though none of the tales were truly outstanding, they were all at least readable, and two were definitely above par.

The lead novel, "Speak of the Devil," was quite refreshing, both in plot and writing. Good as it was, this yarn could have been a much better tale had it been about thirty pages longer—allowing the author to take full advantage of the many situations which he, sadly, disposed of in a reckless, devil-may-care fashion. And this, beloved Sarge, brings up an important point: your novels are getting far too short.

While on the subject of novels, I'll mention that I agree 100% with Bill Stoy; the novels seem to be on a decline in quality. True, a good one comes along now and then, but they are neither as frequent nor as good as the older yarns. For example, "Speak of the Devil" will doubtless be well-liked, for it is a good tale. But try comparing it with "The Black Flame," "Gateway to Paradise," "Twice in Time," or many others. What's that? You don't think there are "many others"? Okay, here's a few more: "Sojarr of Titan," "A Yank at Valhalla," "The Fortress of Utopia," "Five Steps to Tomorrow," and there are still many others.

You'll probably pass this off with a supposedly clever remark and a swig of Xeno, but I'd really advise you to think seriously about it for a moment.

On the lighter side, Cummings' novel next issue looks good. Most of Ray's yarns are, despite Carter's remarks to the contrary. In fact I'll stick my neck out and state emphatically that Ray Cummings can and does outwrite about 80% of the present day hacks. (Fans—wait! Don't do it . . . don't . . . stay away . . . yaaaaaa!! Got me, Sarge!)

Back to the March SS, second place goes to the Hall of Fame selection, "The Super Vivisector," by S. C. Carpenter. Though I usually don't care for the detective angle in stf., I enjoyed this tale a good deal. Why, I frankly don't know.

"The Glory Flight" and "The Great Invasion" follow in that order, both being fairly interesting.

The cover is so-so. The devil in the background is excellent, but the rest is simply rotten. Of the interior pix, all except Orban's were remarkably poor. Get Finlay, Paul, or any decent artist. Marchioni should exhibit his talents among students in the first grade where they might be appreciated.

I am in favor of both prizes for the best letters, and an annual. Where oh where is that annual?

In conclusion, (ain'tcha glad I'm done?) here are a few authors that might be able to pep up SS a bit: Eando Binder, Henry Kuttner, Edmond Hamilton, Edgar Rice Burroughs, and Clark Ashton Smith. (Who said he couldn't write a novel?)—**3956 Ledgewood, Cincinnati, Ohio.**

Break open a fresh case of Xeno, Wartears. The old Sarge is dizzy from so many titles which, according to Kiwi Ebey, are all bad, but according to Oliver, are all good. You know, it is truly startling how one publishing house could manage to buy so many "bad" stories—that lots of other people like. Oh, well, the almanac said there would be days like this. Or was it the American Ephemeris?

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The main thing is that, while Kiwi Oliver is not particularly good for the old Sarge's indigestion, he disagrees sufficiently with Kiwi Ebey to let the two ethergrams have it out while the old Sarge relaxes on the sideline. Wake me up when this bout is over.

But we can't blast off into space without a final comment on the Daniels yarn.

WONDERS NEVER CEASE

By Wilkie Conner

Dear Sarge: Will wonders never cease? For years, Norman A. Daniels has been one of my favorite authors—before I deserted detective fiction for almost a steady diet of science and fantasy stuff. Now he crops up in one of my favorite stf magazines—and with a darn good yarn!

"Speak of The Devil," was one of the finest yarns I've ever read. It's the **best** yarn I've ever read in STARTLING STORIES. Is any further comment necessary?

I noticed that Cummings is scheduled for the next issue in a featured novel. Ray used to write good fiction. I remember his "Girl of the

[*Turn page*]

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Golden Atom." I remember the first science fiction yarn I ever read, too. It was a swell yarn, "The Spawn Of The Comet." It was written by Ray Cummings. A three-part serial in Argosy 'way back in 1929 or '30. Perhaps that's why editors want to remain on Ray's contributing list; they hope that some day, sometime, the old master will come through with another Atom story, or another Comet story. And each editor hopes that **he** will be the editor to whom **that** yarn will be sent.

I'm going to read the Icarus yarn. Maybe Cummings has written that new story.—**147 E. 12th St., Salisbury, N. C.**

Okay, pee-lots, there you have it—as full a cargo as we can cram aboard for this voyage. And let the old Sarge tell you again how sincerely sorry he is that we can't manage to print all the letters that come in. But please keep right on firing at the old space dog's hapless head. Maybe we can get *your* ethergram in next issue's department.

That's all, Frog-eyes. Set the automatic control and feed the space monkeys. The old Sarge is going to have an alcohol rub. Where'd we put that jug of arnica?

—SERGEANT SATURN,
The Old Space Dog.

Next Issue's Novel

PIRATES OF THE TIME TRAIL

By ROSS ROCKLYNNE

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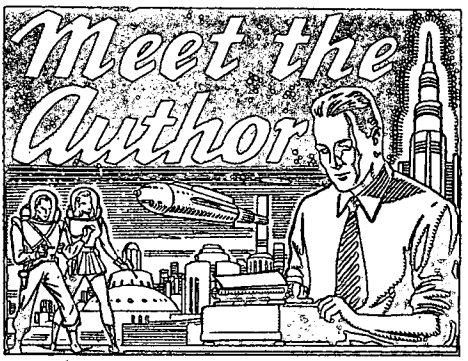


Ray Cummings Rose to Fame on Wings of Fantasy

THE author of this issue's novel, WINGS OF ICARUS, really needs no introduction to any reader. His name is as familiar in the science-fiction field as that of Jules Verne or H. G. Wells. But he has been a dean of fantastic and whimsical literature

Ray Cummings

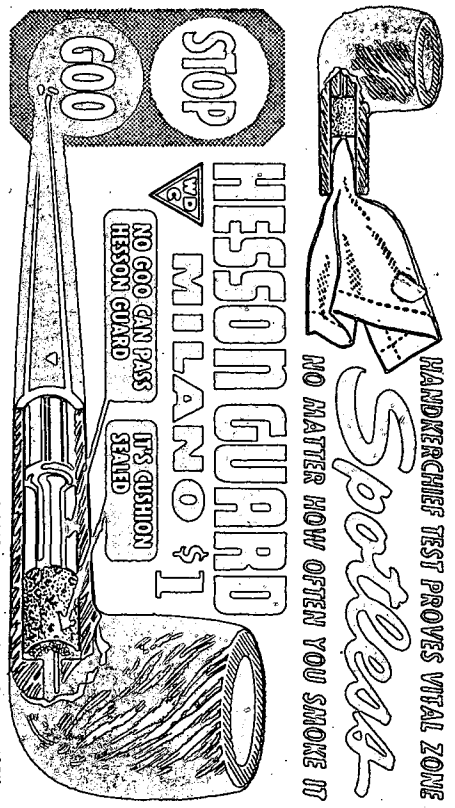
so long that practically no one knows anything about his earlier life and the genesis of his writing career.

Although we suspect he is slyly pulling our leg in one or two spots in his thumbnail sketch of himself, nevertheless, we give you one of the most interesting letters we have ever printed in this department, a self-portrait by Ray Cummings.

In looking back over the years, I think my early life was the most glamorous. In my 'teens —with my adventurous family—I discovered and dug oil wells; searched for gold in Alaska; camped with Siwash Indians in British Columbia, locating timber tracts; planted oranges in Porto Rico, and so on. At the time the First World War ended I was working in the laboratory under Thomas Edison, judging phonograph records, voice trials, editing the musical house organ, writing ads, etc.

I was in the advertising department of Edison Laboratories when, one day in the subway, I noticed a Quaker Oats ad that many of you surely have seen. It depicted the Quaker holding a box of Quaker Oats on which a Quaker was holding a box of Quaker Oats on which a Quaker

(Turn page)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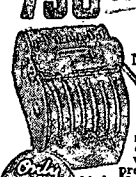

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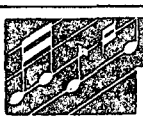

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was holding a box of Quaker Oats—etc., until the picture dwindled down into invisibility. It idly occurred to me that if the printing of that ad were infinitely perfect and my own eyesight infinitely sharp—well, surely I could see millions of Quakers, each progressively smaller than the other. . . .

That night I started to write my first fiction story—THE GIRL IN THE GOLDEN ATOM. I knew nothing of the rules of fiction writing—I didn't even know there were any rules. With a lead pencil I scribbled on about a ream of yellow paper and finally came to an end. I didn't even give the characters any names—why bother? The first twenty thousand words were mostly one character talking—pages, even chapters at a time. By then, intoxicated with my ability to write lots of words, I added some sixty thousand more—in effect the same thing over again, the only switch being from first-person to third-person narrative.

The amazing result was that I had a story which still lives, which is better known than any I have written since. So the moral is—know nothing, and you're all set for success. But the catch is—you can't help learning; and as soon as you learn anything, you're lost. I've been learning ever since I started—so you can see I'm in a bad way, indeed.

Having given you my formula for becoming a successful writer, perhaps I should add my formula for selling the accursed product after it is written. That, too, is simple. It's the same formula. Know nothing.

Undoubtedly, one's very first story must be considered the most difficult to sell. Yet I sold THE GIRL IN THE GOLDEN ATOM very easily. Here's how. I was running for a train to take me to work at the Edison Laboratories—meanwhile pondering what to do with my Girl opus—when I took a quick glance at the railroad station newsstand. The only magazine title which caught my eye, running at such speed, was The Railroad Man's Magazine. In view of the fact that I was in a railroad station at the moment, the combination was irresistible. So I sent my pseudo-science tale to this publication. Where, of course, it belonged—because the late Bob Davis saw it lying around headed for the waste basket (because it had no return postage) and he bought it and published it in Argosy Magazine.

And there you are—in a nutshell. And I could say that again. Since then, I've learned the supposed fact that you must send a story to a magazine publishing stuff of the same general nature as your story. But I find that method harder. But to get on with the closing lines of my sad story:

With the check for THE GIRL IN THE GOLDEN ATOM in my pocket, I told my boss that I was through with the advertising business forever.

"Good luck," he said amiably. "And you'll always look back on THE GIRL IN THE GOLDEN ATOM and say—'There's the thing that made a bum out of me.'"

He was right. Only, the funny part is—I've never been sorry I made the choice I did. Which shows how degenerating fiction writing can be. Plunged thus into making a living at fiction, I was forced to keep on writing—and writing—and there you are. Which brings us immediately up to now. As for the future, who knows? Or, for that matter, who cares?

Kindest regards.

Ray Cummings.

P.S. On second thought, I care.

And so do we, Ray. Many thanks for a charming autobiographical letter.

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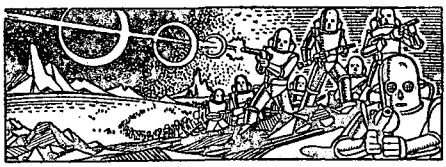
REVIEW OF THE SCIENCE FICTION FAN PUBLICATIONS

By

SERGEANT SATURN

o

YOU know, gentle friends and loving hearts, stepping into this department fresh from THE ETHER VIBRATES, the old Sarge sometimes has the inclination to be Mr. Hyde instead of Dr. Jekyll. Why in the name of seven space spooks can't the old space dog write a snarling letter and snap at all you luscious bits of fanzine editors? How would it sound if we conducted this department as you crackpots run the old astro-



gation chamber (known to the proletariat as The Ether Vibrates)?

Let's—in all fun—let down the back hair and try it. Let's see how you space yard birds like it. For lack of space I will have to write one composite letter for each fanzine instead of appending several communiques. Okay, tighten your gravity belts; we're off!

THE ACOLYTE, 720 Tenth St., Clarkston, Washington. Editor, Francis T. Laney. Quarterly. 35c for four issues.

Dear Editor: There I was just whistling at the moon maidens on the corner of the Spacemen's Café and strictly minding my own business and—Oops!—somebody slipped up and thrust the first copy of your mag into my hands. Thirty pages of standard white (counting the blank back cover) with single-spaced black type. And WHAT? No artwork? Not a single drawing by Belch or Botch or Blooie for me to get bug-eyed over. Ye Gods!!! The contents page on the outside of the cover!! You make me feel turned inside out—like a Venusian puff bladder. But you've got stories, poems and articles and features all neatly listed. Why don't you get new writers? Why don't you trim the edges, or trim your hair—or something? In fact, before I faint in disgust let me tell you that you have a very nice first issue and I wish you a successful life. I know you won't print this letter and so I sign my real name. Here it is—Sergeant Saturn, and my telephone number is—whoa! Wrong telephone booth. (Good start, Editor Laney.)

CATALYST. Box 6475, Metro Station, Los Angeles, Calif. Editor, Ed Chamberlain. No price or publication information.

Dear Editor: Astonishing! Imagine my surprise when I picked up your twelve-page effusion in salmon pink with black ink and found the picture of Captain Future and myself staggering out of the Venus Bar on the cover. Away with quiz questions that I can't answer! Keep up the quiz department. Get better art work. Get worse art work. Print on white paper. Print

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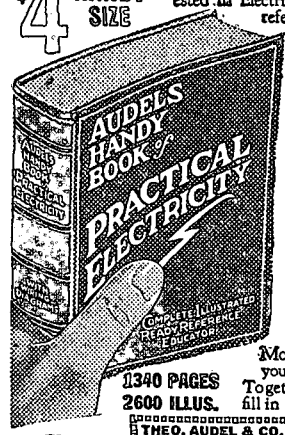

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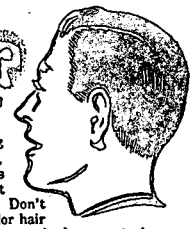

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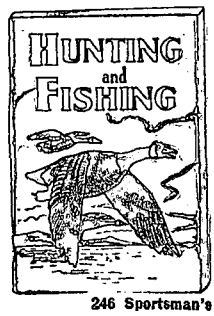

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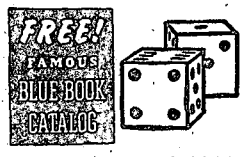

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on salmon pink. Increase the size. Decrease the size. (I could go on like this for hours. Silly, isn't it?) Whoops! Who put the juvenile matinee idol's head on the feminine body emerging from the small Indian teepee on page ten? No foolin', your article on the pro mags was interesting reading. You know more about them than I do. —Sergeant Saturn. (Nice number, Editor Chamberlain.)

EREBUS. 5809 Beechwood Ave., Indianapolis, Ind. Editor, Leonard Marlow. Price 5c per copy. 6 issues, 25c Bi-monthly.

Dear Editor: Hand me my smoked glasses! Holy cow! An almost pocket-size publication in red cover with yellow lettering—like the deah old colors of a high school debating society. And the artwork!! First a tripodal occarina with only one hole, then a pair of vague eyes glomming a den collection of college boy knick-knacks, and then a perambulating nightshirt chasing a frightened grammar school kid. Get rid of Marlow! Instead of that botching dauber get Marlow. There's an artist for you. Twenty-two pages of stuff and such I never saw. Your competitor, **Spatial Spasms,** is the only fanzine for me from now on!! I'm only three and a half years old, and I wouldn't be caught in a blackout without a couple of copies of EREBUS with me, for I just love to read your articles.—Baby Saturn. (Seriously, a neat little job, Editor Marlow.)

Venusian vipers! The old Sarge can't go on like this. I surrender. I don't see how you fans can do it. Perpetual motion, no less! Maybe you can figure out why the old space dog hits the Xeno jug. Anyway, let's get on with this review in the usual manner and save all this gas to feed into the rocket chambers.

FANTASY FICTION FIELD. 6401 24th Ave., Brooklyn, N. Y. Editor, Julius Unger. Weekly. Price 5c per copy.

Half a dozen copies on hand. Still the same one to four sheets of yellow stock with black ink and plenty of miscellaneous information. And also a yearbook of 42 pages inside green covers compiling practically all the science and fantastic fiction for 1941. This must have been a herculean job and is certainly worth every fraction of the 20c asked per copy. Editor Unger, you are one of fandom's most indefatigable fans and I confer on you the Order of the Xeno Jug. Nice—and steady!—going.

FUTURIAN. 4 Grange Terrace, Leeds 7, England. Editor, J. Michael Rosenblum. Six-weekly publication. 3d per copy.

Half a dozen assorted pages of standard size and completely filled with single-spaced copy which the old Sarge hasn't time to read. Several line drawings and a black and white illustration on the back cover called "Tycho." Several enclosed leaflets and photographs on British societies and activities. Should be of great interest to fans. I find the January issue right under this one, and I note the complete title seems to be FUTURIAN WAR DIGEST. More of the same general set-up, with a one-eyed female zombie on the back cover. Not bad going, Editor Rosenblum.

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LIGHT. Box 121, Parry Sound, Ontario, Canada. Editor, Leslie A. Croutch. Monthly. Price 5c per copy.

Thirty pages of assorted colors between orange covers. Single-spaced black ink and several nice headings and drawings. Fiction, articles, verse, etc. Could be a lot verse. The Old Sarge will have to recommend this fanzine.

PARADOX. 3 Lewis St., Westfield, Mass. Editor, Frank Wilimczyk, Jr. Quarterly. 10c per copy; 3 for 25c.

Ha! A dignified publication of standard white stock between yellow covers. Twenty pages of clear-cut stenciling, neat headings and cover drawings. Good idea to space each paragraph; this breaks up the monotony and eye-strain of solid single-spaced stuff. You neat and orderly fans should go for this.

SHANGRI-L'AFFAIRES. 1055 Wilshire Blvd., Los Angeles, Calif. Editor, Alojo. Published—if and when. No price apparent.

Legal size sheets of white with black ink. Solid with type that is as neatly boxed off as the kiwis in the astrogation chamber. Recommended for fans who want newsy items of the West Coast. No good for Sergeant Saturn. No pictures.

ULTRA. 274 Edgecliff Road, Woollahra, Sydney, New South Wales. Editor, Eric Russell. Bi-monthly. 6d per copy; 3 for 1/3.

Well, eighteen pages of standard white with black ink—including the front girlie cover. Sweetie-pie emerging from a celestial bubble bath with arms upraised in "yoo-hoo" greeting to reader. Saturn (the planet, you dope!) in the background. Nice contents page, a couple of good drawings, and neat format in general. Something to make some of you American fanzines ashamed. Good going from 'way down under. The old Sarge always gets a kick out of fanzines from across the seas—and plenty of kicks from American readers. Mush on, Wartears.

VOICE OF THE IMAGI-NATION (VOM). 6475 Metro Station, Los Angeles, Calif. Editors, Forrest J. Ackerman and Morojo. Published—all times possible. Price 10c per copy.

Usual legal size. Fourteen pages this trip with montage cover effect of portrait cuts of California fans and such. Single-spaced but sharply cut stenciled black ink. Plenty chatty and newsy if you are hep to the jive. Not so long on drawings this time, but a good black and white, reminiscent of Finlay, is stippled in between pages. Very neat.

Before closing the frame on this department, the old Sarge wishes to acknowledge receipt of a copy of THE BEAM, a civilian enterprise in the interest of the personnel of the Army Air Forces Basic Training Center at Atlantic City, N. J., and a pamphlet from the Rosicrucian Order at San Jose, Calif.

And that will be all the backfire from this department at this time. Take it away, kiwis, and show me what you can dish up by the next voyage of the space ship STARTLING STORIES.

Pass me the aspirin, Frog-eyes.

—SERGEANT SATURN.

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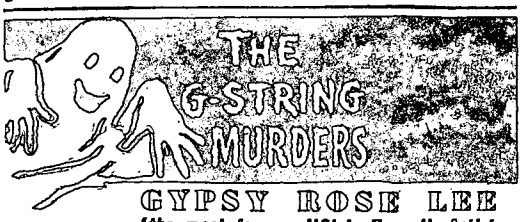

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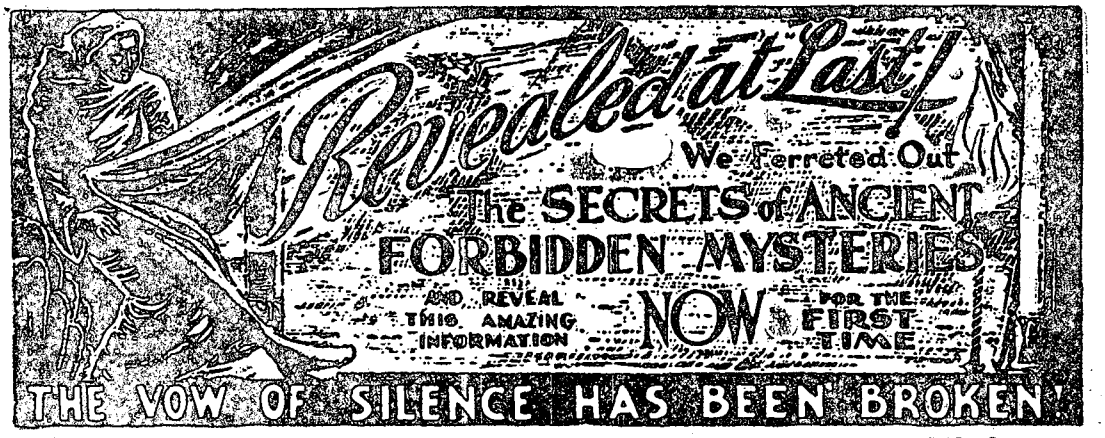

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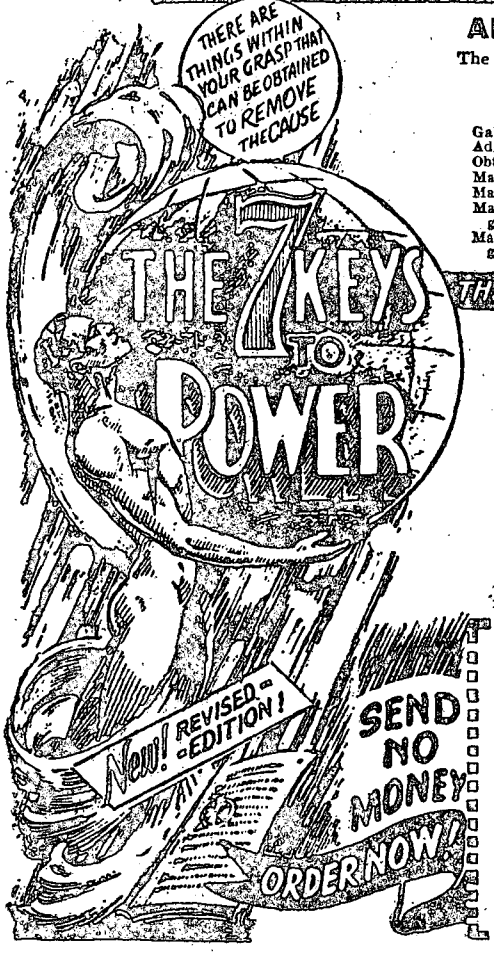
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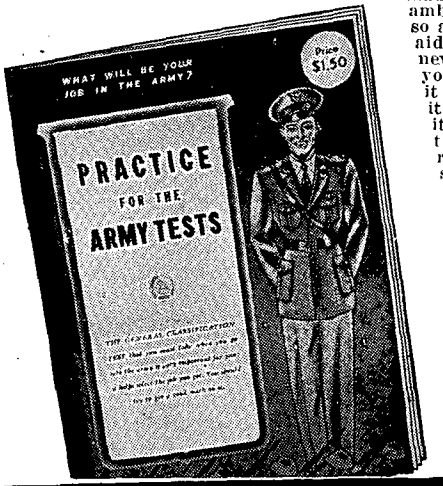

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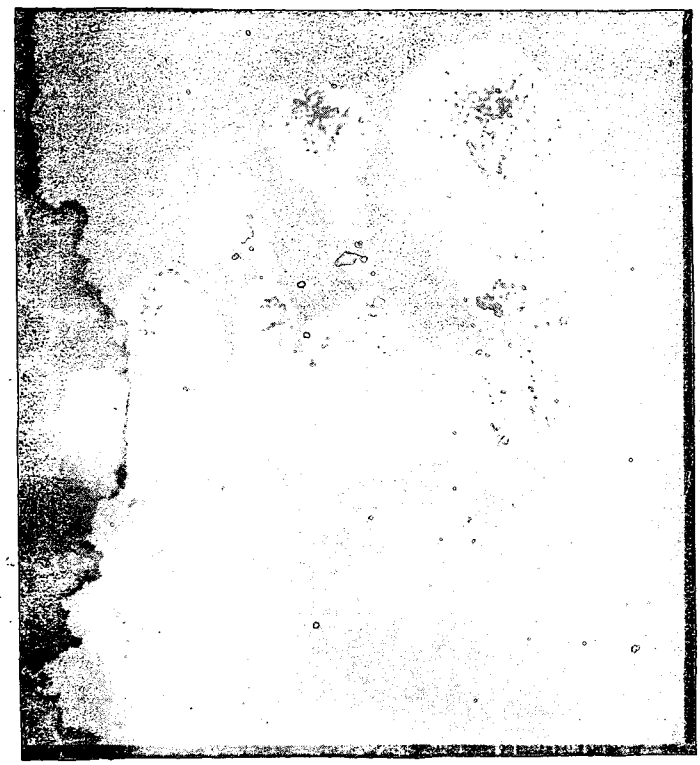
FOOT ITCH
ATHLETE'S FOOT



PAY NOTHING TILL RELIEVED

Send Coupon

At least 50% of the adult population of the United States are being attacked by the disease known as Athlete's Foot.

Usually the disease starts between the toes. Little watery blisters form, and the skin cracks and peels. After a while, the itching becomes intense, and you feel as though you would like to scratch off all the skin.

BEWARE OF IT SPREADING

Often the disease travels all over the bottom of the feet. The soles of your feet become red and swollen. The skin also cracks and peels, and the itching becomes worse and worse.

Get relief from this disease as quickly as possible, because it is very contagious, and it may go to your hands or even to the under arm or crotch of the legs.

WHY TAKE CHANCES?

The germ that causes the disease is known as Tinea Trichophyton. It buries itself deep in the tissues of the skin and is very hard to kill. A test made shows it takes 15 minutes of boiling to destroy the germ, whereas, upon contact, laboratory tests show that H. F. will kill the germ Tinea Trichophyton within 15 seconds.

H. F. was developed solely for the purpose of relieving Athlete's foot. It is a liquid that penetrates and dries quickly. You just paint the affected parts. H. F. gently peels the skin, which enables it to get to parasites which exist under the outer cuticle.

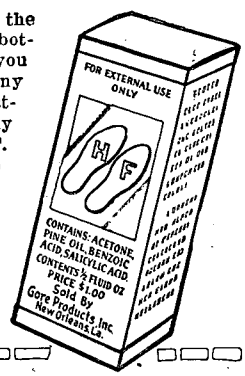
ITCHING OFTEN RELIEVED QUICKLY

As soon as you apply H. F. you may find that the itching is relieved. You should paint the infected part with H. F. every night until your feet are better. Usually this takes from three to ten days.

H. F. should leave the skin soft and smooth. You may marvel at the quick way it brings you relief. It costs you nothing to try, so if you are troubled with Athlete's Foot why wait a day longer?

H. F. SENT ON FREE TRIAL

Sign and mail the coupon, and a bottle of H. F. will be mailed you immediately. Don't send any money and don't pay the postman any money; don't pay anything any time unless H. F. is helping you. If it does help you, we know you will be glad to send us $1 for the bottle at the end of ten days. That's how much faith we have in H. F. Read, sign and mail the coupon today.



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Please send me immediately a bottle of H. F. for foot trouble as described above. I agree to use it according to directions. If at the end of 10 days my feet are getting better, I will send you $1. If I am not entirely satisfied, I will return the unused portion of the bottle to you within 15 days from the time I receive it.

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